SHARP SERVICE MANUAL

CODE: 00ZERA250VSME

ELECTRONIC CASH REGISTER

MODEL ER-A250

SRV KEY: LKGIM7113RCZZ
PRINTER: CR-750

CONTENTS

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

1. BLOCK DIAGRAM

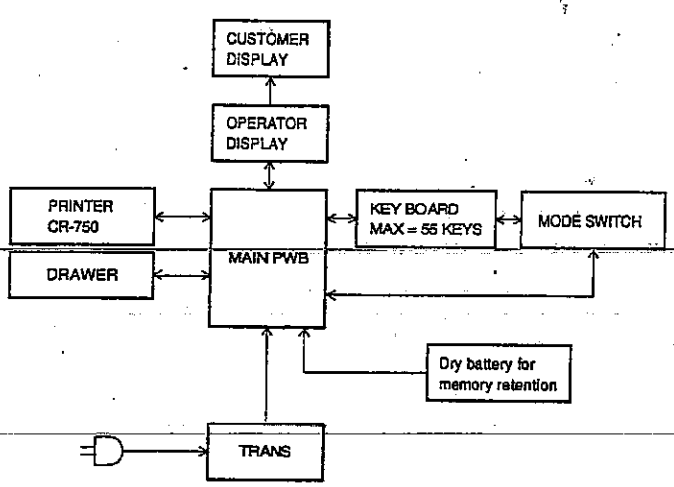


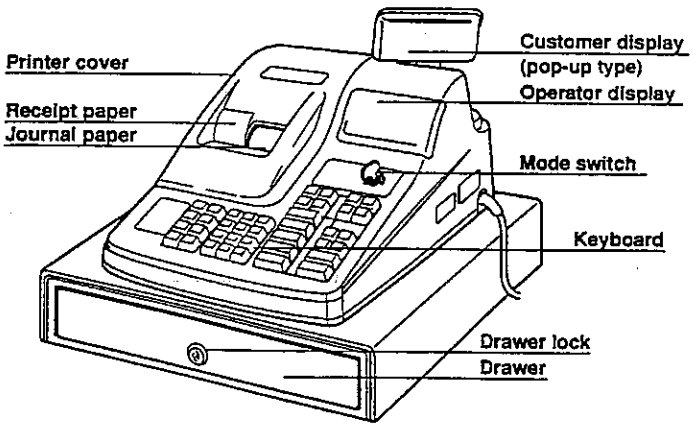
Fig. 1-1

2. SPECIFICATIONS

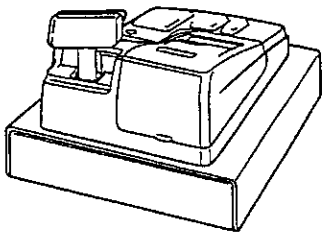
2-1. Appearance

ER-A250

Front View



Rear View



2-2. Rating

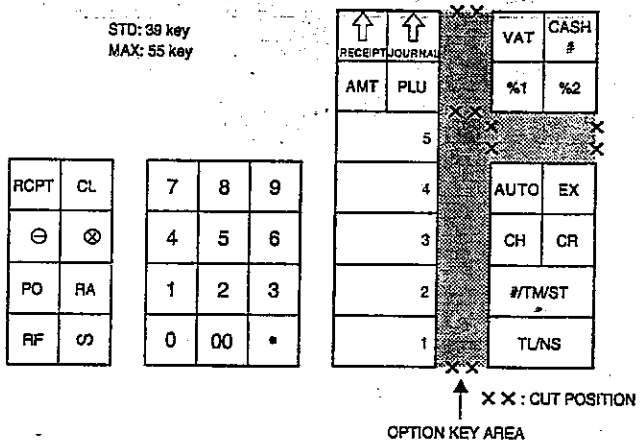
[Specifications]

Power source	AC LOCAL VOLTAGE (±10%), 60Hz
Power consumption	at 220V~230V 19W at 230V~240V 17W
Ambient temperature, humidity	0 ~ 40°C 10 ~ 90%
External dimension (Including the drawer)	420 (W) x 426 (D) x 258 (H)
Weight	12 kg

2-3. Keyboard

(1) Key layout

ER-A250



Type: Normal keyboard
Key layout: Free key layout

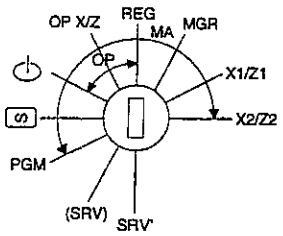
(2) Key List

KEY TOP	DESCRIPTION	KEY TOP LABEL COLOR		KEY TOP TYPE
		BASE	CHAR.	
0 to 9,00	Numeric keys	Gray 50%	White	Molded key
•	Decimal point key	Gray 50%	White	Molded key
CL	Clear key	Brown	White	Key Cap + Label
⊗	Multiplication key	Brown	White	Ditto
DEPT. 1~5	Department 1~5 keys	Beige	Black	Ditto
↑ RECEIPT	Paper Receipt feed key	Brown	White	Ditto
↑ JOURNAL	Paper Journal feed key	Brown	White	Ditto
RCPT	After receipt issue key	Yellow	Black	Ditto
⊖	Markdown 1 keys	Red	White	Ditto
%1, %2	% keys	Yellow	Black	Ditto
PO	Paid out key	Red	White	Ditto
RA	Received account key	Brown	White	Ditto
RF	Refund key	Red	White	Ditto
∞	Void key	Red	White	Ditto
PLU	PLU code entry key	Silver	Black	Ditto
AMT	Amount entry key	Yellow	Black	Ditto
CASH #	Cashier Code-entry key	Green	White	Ditto
#/TM/ST	Tax included subtotal key	Silver	Black	Ditto
CR	Credit key	Blue	White	Ditto
CH	Check key	Yellow	Black	Ditto
TL/NS	TL/NS key	Silver	Black	Ditto
VAT	Manual VAT key	Green	White	Ditto
EX	Currency conversion key	Yellow	Black	Ditto
AUTO	Automatically entry key	Beige	Black	Ditto

(3) Optional key

KEY	DESCRIPTION
DEPT. 6 ~ 15	Department 6 ~ 15 keys
CR2	Credit 2 key
AUTO 2	Automatically 2 entry key

2-4. Mode Switch



* The keys can be inserted or removed in the REG and ⏻ positions

[Mode switch positions]

SRV: Master/Program resetting
PGM: Various PGM programming
∞ : After-transaction voiding
⏻: Switching off the display to prevent keyboard entries
OP X/Z: Individual clerk or cashier reading and resetting
REG: Various entries
MGR: Display reading of some daily totals and limit overriding
X1/Z1: Reading and resetting of any daily totals
X2/Z2: Reading and resetting of any periodic totals
SRV': System resetting position

[Mode select keys]

SRV: Service keys: LKGIM7113RCZZ
MA: Manager key: LKGIM7110RCZZ
OP: Operator key: LKGIM7111RCZZ

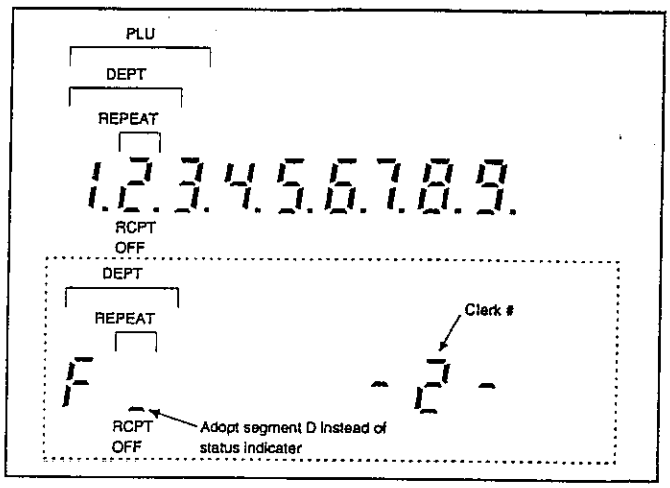
NOTE: SRV key is not included in the accessories. (Supplied as service parts.)

2-5. Display

1) Operator display

Display device: [Fluorescent display tube]
Number of line: 1 lines
Number of positions: 9 positions numeric display
Color of display: Green
Character size: Numeric 7.4 (H) x 5.5 (W)

(Layout)



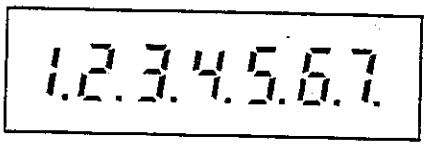
2) Display contents

	Display position	Description
Amount	1 – 8	
Minus sign	4 – 9	–: Floating
Error	9	E
PGM Mode	9	P
TL/CH/CR/NS	9	F; Lights up when a registration is finalized by depressing TL/NS, CH or CR KEYS.
Subtotal or short tender	9	O
Change	9	C: Lights up whenever the change due amount appears in the display.
Department	9 – 8	No zero-suppressed.
PLU	9 – 7	No zero suppressed.
Repeat	8	Endless count, starting from 2
Decimal point	3 – 1	TAB
Low battery	9	L: Lights up when the voltage of the battery for memory retention is lower than the regulated voltage.
Receipt off	8	Segment D
Cashier No.	2	– O – : 1 2 3 4 code entry

3) Customer display

Display device: [Fluorescent display tube]
No. of positions: 7
Color of display: Green
Style: Pop-up
Character size: 10.0 (H) x 4.5 (W)

(Layout)



(Display contents)
The same as operator display, 1'st to 7th positions.

2-6. Printer CR-750 (Specification)

1. Printer

- Part number: CR-750
- No. of stations: 2
- Printing system: Inner hammer, rubber character selection type
- Printing capacity: 12+12 columns
- Character positions: 12characters (13characters in the even columns)
- Character size: 1.6mm (W) x 2.7mm (H)
- Print pitch: Column spacing 2.8mm
  Line spacing 4.6mm
- Print speed: Approximate 2.5 lines/s (average)
- Paper feed speed: Approximate 27 lines/s (Speed when the receipt is issued)
  Approximate 16 lines/s (Receipt and journal fast paper feed)
- Reliability: MCBF 2.0 million lines

2. Paper

- Paper roll dimension: 44.5±0.5mm
  max. 83mm in diameter
- Paper quality: Journal
  Bond paper (paper thickness: 0.06 to 0.085mm paper weight: 52.3 to 64g/m²)

3. Inking

- Ink supply system: Ink roller
- Form: Roller
- Specification: Material – rubber
- Print color: purple

4. Logo stamp

- Material: porous rubber
- Stamp color: purple (single color)
- Max. stamp size: 30mm (W) x 15mm (H)
- Stamp pattern:

  [YOUR RECEIPT THANK YOU]
  or
  [VIELEN DANK]

- Ink refill: Allowed (UINK-1001CCZZ)

5. Cutter

- Method: Manual

6. PRINTING WHEEL LAYOUT.

	1	2	3	4	5	6	7	8	9	10	11	12
X		PL		No		:		%		RF		
Z	0	0	0	0	0	0	0	0	0	CA	CD	
1	1	1	1	1	1	1	1	1	1	CH	I	
2	2	2	2	2	2	2	2	2	2	◄	II	
3	3	3	3	3	3	3	3	3	3	►	III	
4	4	4	4	4	4	4	4	4	4	CK	IV	
5	5	5	5	5	5	5	5	5	5	#	ST	
6	6	6	6	6	6	6	6	6	6	∞	→	
7	7	7	7	7	7	7	7	7	7	TX	Q	
8	8	8	8	8	8	8	8	8	8	VT	@	
9	9	9	9	9	9	9	9	9	9	NS	←	
★	★	★	★	★	★	★	★	★	+	CR	TL	
.	.	.	.	.	.	.	.	.	–	*	–	

Part Code: 00BM751002020
Price Rank: BK

2-7. Drawer

[Outline]

- Standard equipment: Yes (1)
- Max. number of connectable drawer: None
- The drawer consists of:
  (1) Drawer box (outer case)
  (2) Money case
  (3) Lock (attached to the drawer)

[Specification]

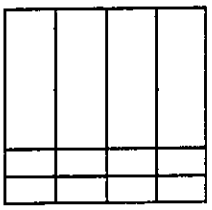
(1) Drawer box and drawer

	ER-A250
Model name of the drawer box	SK-423
Size	420 (W) x 426 (D) x 114 (H)
Color	Light olive gray
Material	Metal
Bell	—
Release lever	Standard equipment; situated at the bottom
Drawer open sensor	Standard equipment
Separation from the main unit	Allowed (needed the shield plate kit)

(2) Money case

	ER-A250
Separation from the drawer	Allowed
Separation of the bill compartments from the coin conpartments	Disallowed
Number of compartments	4B/8C

Deign:



4B/8C

(3) Lock (LOCK KEY: LKGIM7331BHZZ)

- Location of the lock: Front
- Method of locking and unlocking
  Key No. SK1-1: To lock, insert the drawer lock key into the lock and turn it 90 degrees counter clockwise.
  To unlock, insert the drawer lock key and turn it 90 degrees clockwise.

[Supplement]

The secondary purposes of the drawer include;

- Checking of roll coins: Coins can be piled on the drawer for checking the number (amount) of them.

3. BATTERY

3-1. Memory back up battery

For memory back up, the dry battery ULM-3 (3 pieces) is needed.

1. Memory holding time:
   Approx. 1 year after NEW dry batteries are inserted.
2. Battery exchange method:
   When the low battery symbol "L" lights up, batteries (ULM-3) replaced by the following method, within 2 days.
   1) Power on the ECR.
   2) Mode sw turn to "TIME MODE".
   3) Remove the OLD dry batteries (3 pieces).
   4) Insert the NEW dry batteries (3 pieces).
   5) Confirm the low battery symbol "L" lights off.

3-2. Low battery

Low battery indication will appear in left side of display when the battery voltage is low.

CASE 1: When sitting idle or after completion of transaction.

The machine can indicate the low battery condition. (Always)

CASE 2: Low battery indication will not appear during key operations, and will appear after power up of the cash register.

[Display sample]

" 0.00 " : Battery is OK.
"L 0.00 " : Low battery (You have to change the batteries.)

After finalization
"F 12.34 " : Battery is OK.
"L 12.34 " : Low battery. ("L" indicate instead of "F".)

3-3. No battery

If the user forgets to replace the battery and the battery voltage falls below a certain level, or if a power failure occurs with no battery installed, memory contents cannot be retained. The CPU judges it as no battery and perform the master reset. In this case, all the settings and registrations are cleared. If, however, the power is supplied to the AC card, even though no battery is installed, memory contents are retained.

4. OPTIONS

4-1. Options

NO.	NAME	MODEL NAME	NOTES
1.	KEY TOP KIT	ER-11KT6	1 x 1 KEY TOP
		ER-12KT6	1 x 2 KEY TOP
		ER-22KT6	2 x 2 KEY TOP
		ER-11DK6	1 x 1 DUMMY KEY
		ER-51DK6	1 x 5 DUMMY KEY
2.	COIN CASE	ER-48CC2	
3.	COIN CASE COVER	ER-01CV1 – 5	

4-2. Service options

NO.	NAME	PARTS CODE	DESCRIPTION
1.	DRIP PROOF KEY COVER	GCOVH7063BHZZ	
2.	SRV KEY	LKGIM7113RCZZ	SERVICE KEY
3.	DRAWER SEPARATION KIT	DKIT-8652BHZZ	

4-3. SUPPLIES

NO.	NAME	PARTS CODE	DESCRIPTION
1.	ROLL PAPER	TPAPR0001RCZZ	1 PC
2.	ROLL PAPER	DPAPR1006CSZZ	5 ROLLS/PACK
3.	INK FOR STAMP	UINK-1001CCZZ	5 cc
4.	INK ROLLER	NROLR6652RCZZ	Blister pack
5	INK ROLLER	NROLR6652RC05	5-stage blister pack

5. SPECIAL SERVICE TOOLS

NO.	PARTS CODE	PRICE RANK	DESCRIPTION
1.	UKOG-6634RCZZ	AX	KEY TOP REMOVER
2.	LKGIM7113RCZZ	AK	SERVICE KEY

6. REFERENCE DOCUMENTS

NO.	DESCRIPTION	MANUAL CODE
1.	ER-A250 PROGRAMMING MANUAL	00ZERA250PM-E
2.	CR-750 PRINTER SERVICE MANUAL	00ZCR750SM/-E

7. TEST FUNCTION

1) To execute the diag test, set the mode switch to SRV1, enter a desired JOB code, and press ST (subtotal) key.
2) The test message is printed by the printer.
3) The RAM test will clear the totalizer and the preset values.
4) Test contents and key operations

No.	Test contents	Key operations
1	Mode SW test	1 → [ST]
2	Key test	___02 → [ST]
3	Display buzzer test	3 → [ST]
4	Drawer test	4 → [ST]
5	Printer test	5 → [ST]
6	RAM test	6 → [ST]
7	Battery voltage sense test	7 → [ST]
8	Sequential test	___10 → [ST]
9	Aging test	11 → [ST]

ST = #/TM/ST

1. Mode switch test

1) Key operation

1 → [ST]

2) Test procedure

Change over the mode switch as shown in 3). If the mode switch data in the proper sequence is not read with the above operation, an error print is made.
To cancel this test mode, set the mode switch from a position other than SRV1 to SRV1. In this case, the completion print is made. During the test, the display indicates hard codes which correspond to switch positions.

3) Mode switch operation

Start 01 → 02 → 03 → 04 → 05 → 06 → 07 → SRV1 (END)
↑
No check when returning the switch to SRV1.

Completion print 1
Error print *******1

2. Key test

1) Key operation

___02 → [ST]

2) Test procedure

Perform the keyboard check with the sum check data of the key code. Enter the sum check data of each model in the four digits preceding the diag number 02, and compare the data with the key position code which is added until TL/NS key is pressed. (TL/NS key is out of calculation.) If the data coincide with the code, the completion print is made. If not, the error print is made.
(At that time, a catch sound is generated and the key code is displayed in the lower two digits on the display.)

3) Key check sequence

There is no specified key check sequence. Pressing TL/NS key terminates the key check and starts comparison with the sum check data.

Completion print 2
Error print *******2

No.	Model	Sum check data	Production start
1	ER-A250V	45	May 1993

Sum check data table

					R↑	J↑	B5	35	25
					85	84	A5	B4	14
					95	A4	B3	34	11
45	55	71	75	81	91	A1	B1	33	23
51	53	65	74	83	92	A2	B2	31	21
41	44	54	64	73	82	94	A3	32	22
52	42	43	61	62	63	72	93	24	12

All the key position codes of each model are summed up and the total is used for the sum check data.

3. Display buzzer test

1) Key operation

3 → [ST]

2) Test procedure

Check the continuous buzzer sound and the display state.

Display state:
1.2.3.4.5.6.7.8.9.
The decimal points will shift from the lower digit to the upper, step by step.

To cancel the test mode, press any key, and the buzzer will stop and "0" will be displayed.

Completion print 3

4. Drawer test

1) Key operation

4 → [ST]

2) Test procedure

The drawer opens with the above key operation. Check that the display shows "0" when the drawer is open and "C" when closed. Press any key to terminate the test.

Completion print 4
Display C
Display O

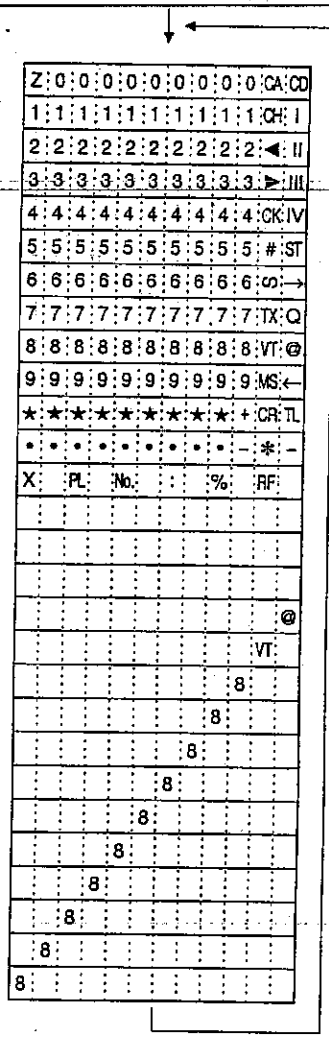
5. Printer test

1) Key operation

5 → ST

2) Test procedure

With the above key operation, the print test pattern is repeatedly printed. Pressing any key will terminate the test after completion of one cycle print.
(Print format)



6. RAM

1) Key operation

6 → ST

2) Test procedure

Write the data shown below into the external RAM, read it out from the RAM, and compare it with the write data. If there is no error, the mode returns to the key wait state. If there is any error, the buzzer sounds intermittently and the error print is made. To clear the error, press CL key.
(This test will clear all the settings. To start a normal operation after this test, therefore, the master reset must be performed.)

Completion print 6
Error print *******6

Address

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
01X	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
02X	F	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E
04X	E	F	0	1	2	3	4	5	6	7	8	9	A	B	C	D
08X	D	E	F	0	1	2	3	4	5	6	7	8	9	A	B	C
10X	C	D	E	F	0	1	2	3	4	5	6	7	8	9	A	B
20X	B	C	D	E	F	0	1	2	3	4	5	6	7	8	9	A
40X	A	B	C	D	E	F	0	1	2	3	4	5	6	7	8	9
80X	9	A	B	C	D	E	F	0	1	2	3	4	5	6	7	8

7. Battery voltage sensor test

1) Key operation

7 → ST

2) Test procedure

The state (H/L) of PORT P33 is read and displayed as follows:

7 1 – – – At HIGH
7 0 – – – At LOW

To terminate the test, press any key.

Completion print 07

8. Sequential test

1) Key operation

___10 → ST

2) Test procedure

Enter the sum check data of each model in the four digits preceding the diag number 10.
With the above key operation, all of test 1, 2, 3, 4, 5, and 6 are executed sequentially. For test 5 (the print test), however, a simplified print is made.
After completion of each test, its completion print is made. After completion of the test No.6, the receit is issued. In case of an error, the error print is made and the next test is performed.

Simplified print format

Z 1 2 3 4 5 6 7 8 9 CR —
· ★ 9 8 7 6 5 4 3 2 CH CD

9. Aging test

1) Key operation

___11 → ST

Enter the time (sec) of repeated operations on the underlined section "___".

2) Test procedure

The non-sail operation is repeated at the interval of preset time (sec).

8. CIRCUIT DESCRIPTION

Circuit block diagram

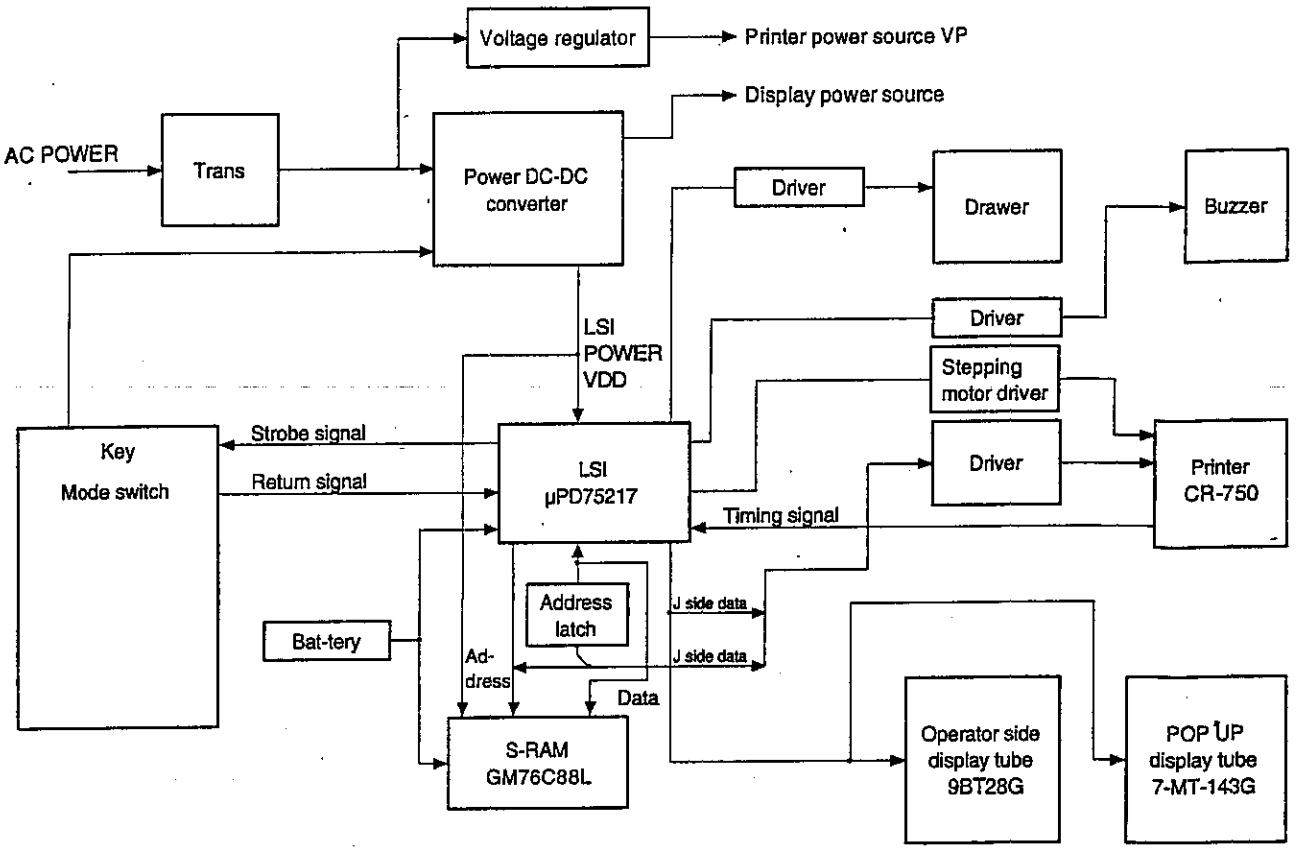


Fig. 8-1

8-1. μPD75217 Terminal signal

No.	Name	Description	I/O
1	S3	Key strobe/Display tube segment signal (d)	out
2	S2	Key strobe/Display tube segment signal (c)	out
3	S1	Key strobe/Display tube segment signal (b)	out
4	S0	Key strobe/Display tube segment signal (a)	out
5	PE	Power enable	in
6	KR0	Key return signal	in
7	KR1	Key return signal	in
8	KR2	Key return signal	in
9	TIM	Printer timing signal input	in
10	R	Printer reset signal	in
11	KR3	Key return signal	in
12	KR4	Key return signal	in
13	DRO	Drawer open signal, RAM chip select signal	out
14	$\overline{WR}$	RAM write enable signal	out
15	A12	RAM address bus A12	out
16	$\overline{ALE}$	RAM address latch signal	out
17	MD	Motor drive signal	out
18	$\overline{PRE}$	Printer hammer enable/no battery	out/in
19	KR5	Key return signal	in
20	P33	Low battery signal/Stepping motor common	in/out
21	A8	RAM Address bus A8/Receipt feed magnet	out
22	A9	RAM Address bus A9/Journal feed magnet	
23	A10	RAM Address bus A10/Stamp magnet	
24	A11	RAM Address bus A11	out
25	AD0	Data bus D0/Address bus A7/Printer magnet 1	in/out
26	AD1	Data bus D1/Address bus A6/Printer magnet 2	in/out
27	AD2	Data bus D2/Address bus A5/Printer magnet 3	in/out
28	AD3	Data bus D3/Address bus A3/Printer magnet 4	in/out
29	BZ	Buzzer signal	out
30	X1	X'tal terminal 4.19MHz	in
31	X2	X'tal terminal 4.19MHz	in
32	GND	GND	in
33	XT1	Timer X'tal terminal 32.768KHz	in
34	XT2	Timer X'tal terminal 32.768KHz	in
35	AD4	Data bus D4/Address bus A2	in/out
36	AD5	Data bus D5/Address bus A4	in/out
37	AD6	Data bus D6/Address bus A1/Printer magnet 5	in/out
38	AD7	Data bus D7/Address bus A0/Printer magnet 6	in/out
39	-RESET	Reset signal input	in
40	T0	Display tube 1st digit drive signal	out
41	T1	Display tube 2nd digit drive signal	out
42	T2	Display tube 3rd digit drive signal	out
43	T3	Display tube 4th digit drive signal	out
44	T4	Display tube 5th digit drive signal	out
45	T5	Display tube 6th digit drive signal	out
46	T6	Display tube 7th digit drive signal	out
47	T7	Display tube 8th digit drive signal	out
48	T8	Display tube 9th digit drive signal	out
49	T9	NU	
50	PH3	Stepping motor signal	out
51	PH2	Stepping motor signal	out
52	PH1	Stepping motor signal	out
53	PH0	Stepping motor signal	out
54	S11	Key strobe signal (Check the destination.)	out
55	S10	Key strobe signal/Drawer open sense signal	out
56	Vload	Power (-20V) for display	in
57	Vpre	Power (-4V) for display	in
58	S9	Key strobe signal	out
59	S8	Key strobe signal	out
60	S7	Key strobe/Display tube Decimal point	out
61	S6	Key strobe/Display tube segment signal (g)	out
62	S5	Key strobe/Display tube segment signal (f)	out
63	S4	Key strobe/Display tube segment signal (e)	out
64	VDD	Power (+5V)	in

8-2. Circuit description

(1) RAM Read/write circuit

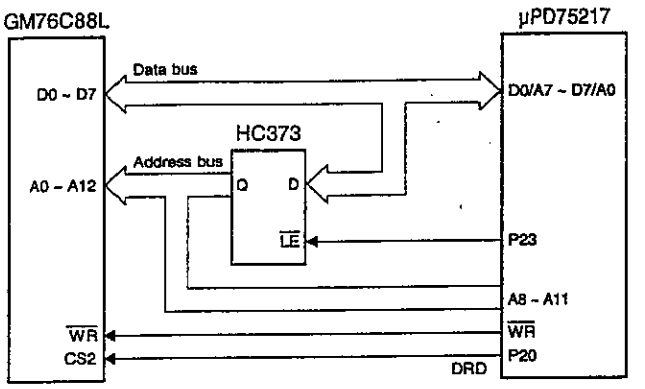
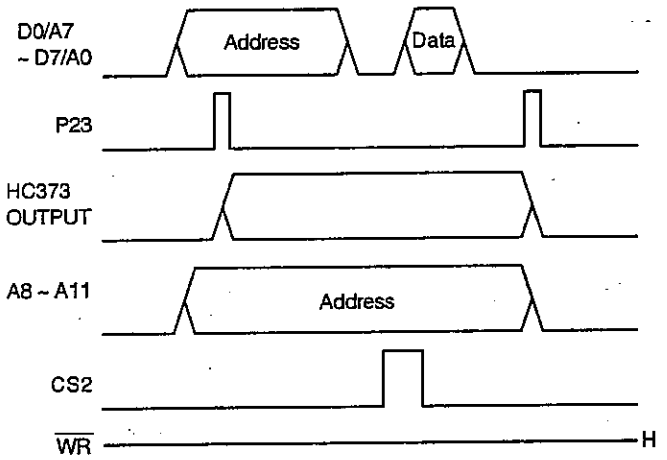
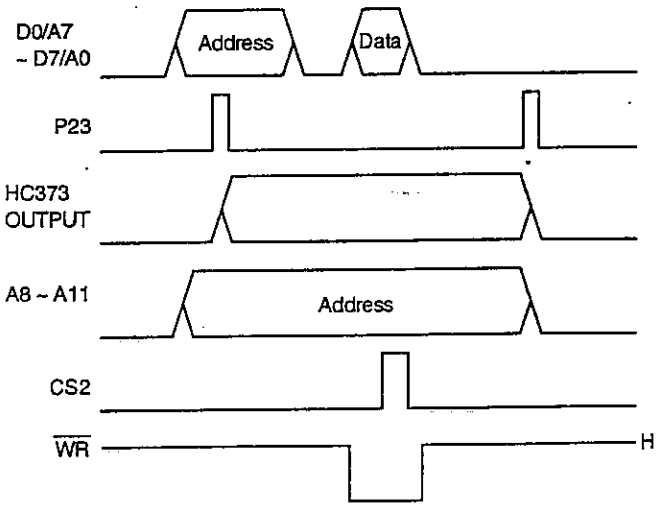


Fig. 8-2

Since the 8-bit data bus of the μPD75217 shares the same lines with the 8-bit address bus of the GM76C88L, selection of the RAM chip by the μPD75217 causes the HC373 to latch the 8-bit address when P23 of μPD75217 is inputted.



RAM data read timing



RAM data write timing

(2) P-OFF & RESET circuit

There are two cases of power OFF/ON with different sequences as follows:

i) OFF/ON by the AC cord

- . At power off

"When a power failure occurs or the AC plug is disconnected from the power outlet, P-ON voltage falls as well as VO voltage. When it falls below 15V, the current flowing through the zenor diode (ZD1) stops to drop the voltage at point (a), turning the PE signal LOW.

- . At power ON

When the power failure is reset or the AC plug is connected with the AC outlet, V0 (P-ON voltage) rises to generate 5V with ZD7. When the input voltage of reset IC8 (PST520D) exceeds 4.2V, the output of IC7 turns HIGH to operate the reset circuit, providing reset signal LOW and resetting the CPU.

At the same time, a current flows through zenor diode (ZD1) to rise the voltage at point (a). As Vcc voltage rises, PE signal turns HIGH.

ii) OFF/ON by the mode SW

- . At power OFF

When the mode switch is set to OFF position, P-ON voltage falls. When it falls below 15V, the current flowing through the zenor diode (ZD1) stops to drop the voltage at point (a), turning PE signal LOW as VCC voltage rises.

- At power ON

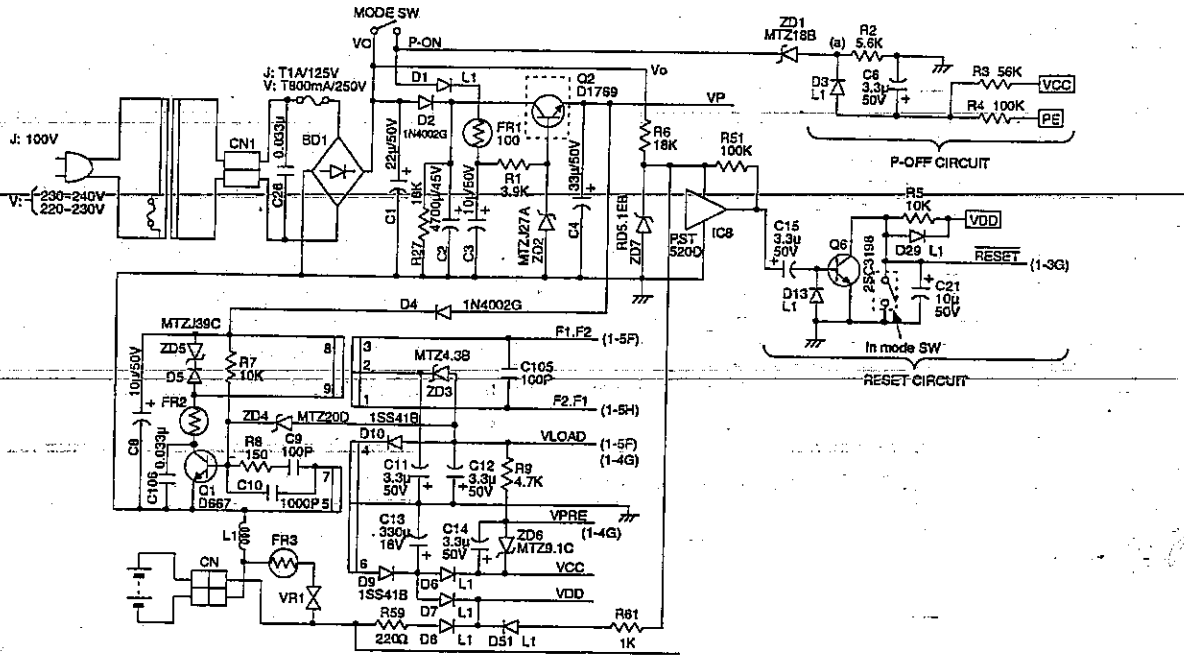
When the mode switch is set to ON position, P-ON voltage rises. When it exceeds 15V, a current flows through the zenor diode (ZD1) to rise the voltage at point (a), turning PE signal HIGH as VCC voltage rises.

(Note) In this case, the rest signal LOW is not outputted.

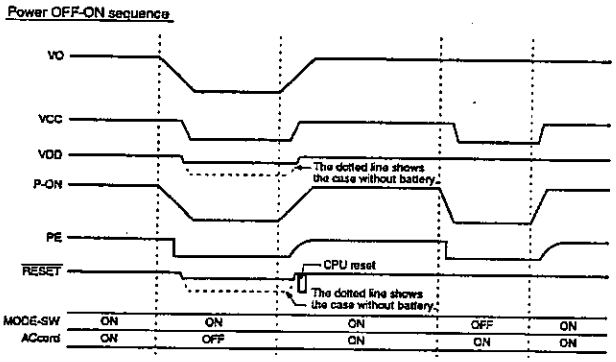
iii) Reset circuit

When the mode switch is set to SRV' position, RESET signal LOW is outputted to reset the CPU.

P-OFF (PE) & RESET CIRCUIT



Power OFF-ON sequence



(3) Key and switch

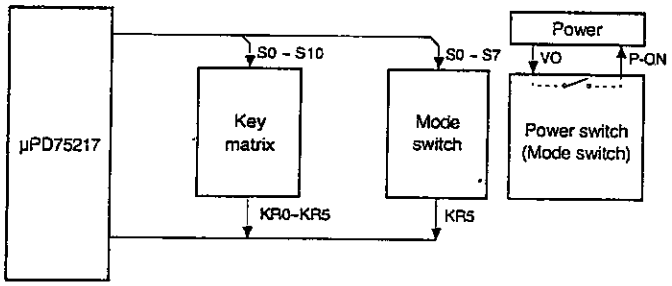
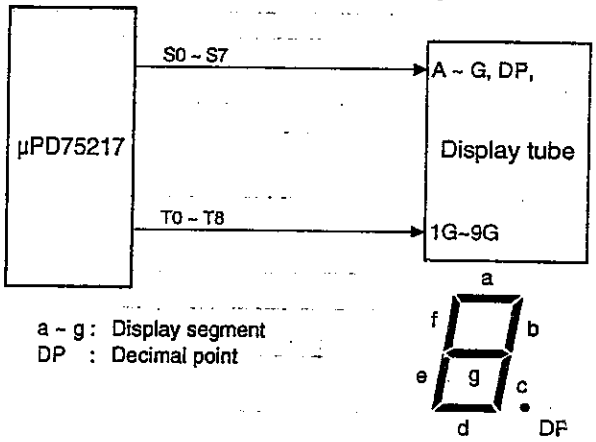


Fig. 8-5

S0 – S10 : Key scan signal
KR0 – KR5 : Key return signal
V0 : Power switch
P-ON : Mode switch
KR5 : Mode switch return signal

(4) Display control



a ~ g : Display segment
DP : Decimal point

Fig. 8-6

(5) Printer control

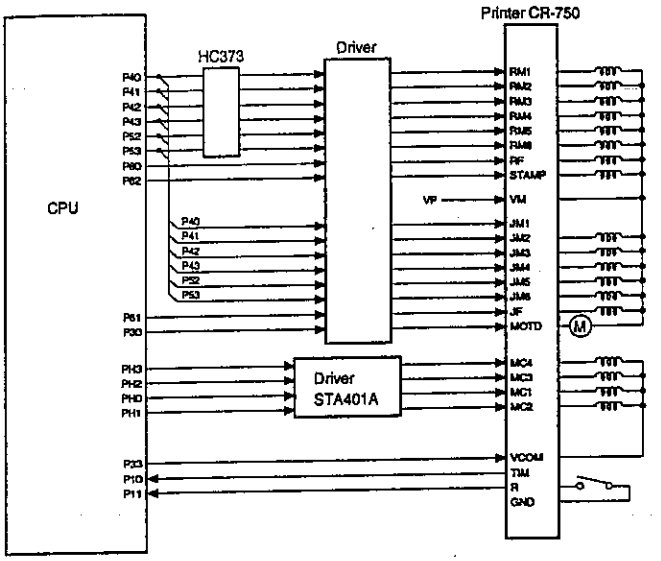


Fig. 8-7

Signal name

RM1 ~ RM6	:	Printer magnet drive signal of receipt side
JM1 ~ JM6	:	Printer magnet drive signal of journal side
RF	:	Paper feed of receipt
JF	:	Paper feed of journal
STAMP	:	Stamp control signal
VP	:	Printer power
MOTD	:	Paper feed motor
MC1 ~ MC4	:	Printing wheel stepping motor
R	:	Rest senser

Outline of printer control

1) The ER-A250 employs the CR-750 which is of the font rubber type of the inner hammer system. This printer is equipped with the DC motor for paper feed and the stepping motor of the outer rotor type for rotating the font rubber.
The paper feed motor is driven by the CPU through port P30 and the driver.
The stepping motor is driven by outputting binary pulse signals from port PH0 ~ PH3 through driver STA401A.

2) There are six hammer magnets in the receipt side and six in the journal side for striking the font rubber.

3) Signals sent from the printer are the TIM signal which is in synchronization with the rotation of the paper feed motor, and the R signal which is generated when the font rubber rotates one revolution.

4) In the CR-750, the font rubber is rotated by the step motor, and the font to be printed is stopped at the hammer position according to the number of pulses sent from the step motor.
When a reverse rotation pulse is applied to the step motor, the drum tries to rotate in the reverse direction. However, the reverse rotation prevention pawl is provided on the drum and the font rubber is completely locked.
Under this state, the hammer is driven to print. When, therefore, printing is performed, the drum is stationary. To print fonts which are in different lines, the drum must stop at each font position, reducing the printing speed.

(6) Paper feed motor drive circuit

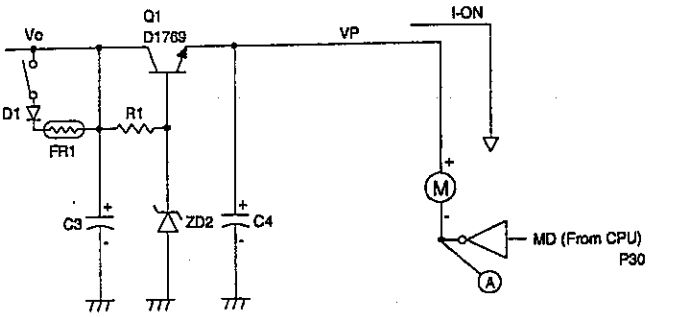


Fig. 8-8

① When the motor is ON:
The MD signal goes HIGH. → The level at point A goes LOW. → The VP turns active and the motor rotates. (The current I-ON flows.)

② When the motor is OFF:
The MOT signal goes LOW. → The level at point A goes HIGH. → The VP turns off and the motor stops.

(7) Drawer control

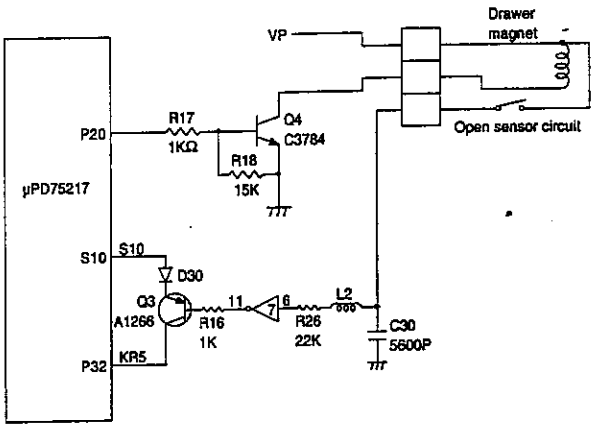


Fig. 8-9

The drawer magnet is driven when P20 of the μPD75217 changes from low to high state.

(8) Power circuit

1) Block diagram

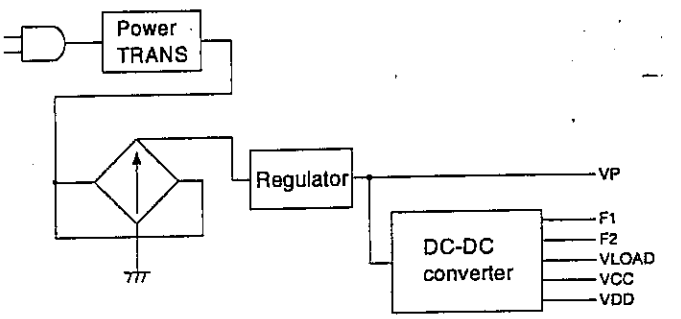


Fig. 8-10

VP	:	Printer operating
F1, F2	:	Display tube heating
VLOAD	:	Display operating
VCC	:	+5V
VDD	:	+5V

2) Printer voltage regulator circuit

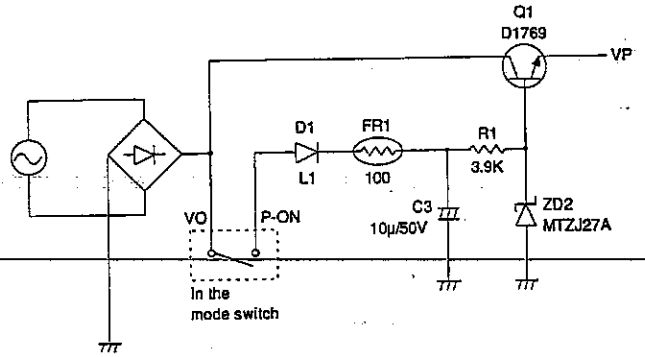


Fig. 8-11

1) If VO-P-ON was not shorted within the mode switch (power off), TR1 remains inactive as no voltage is applied to the base of Q1.
2) If VO-P-ON was shorted, Q1 goes active as voltage is added to the base of Q1.
3) With activation of Q1, the voltage VP begins to increase.

3) DC-DC converter

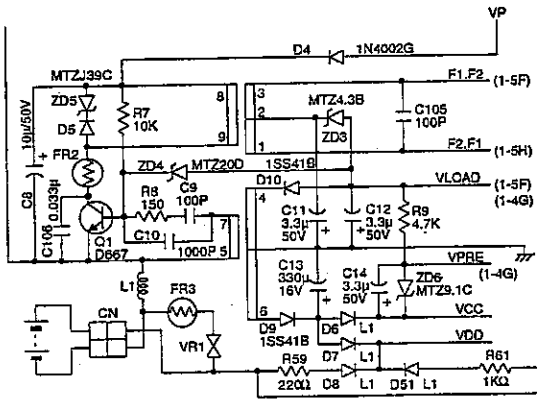


Fig. 8-12

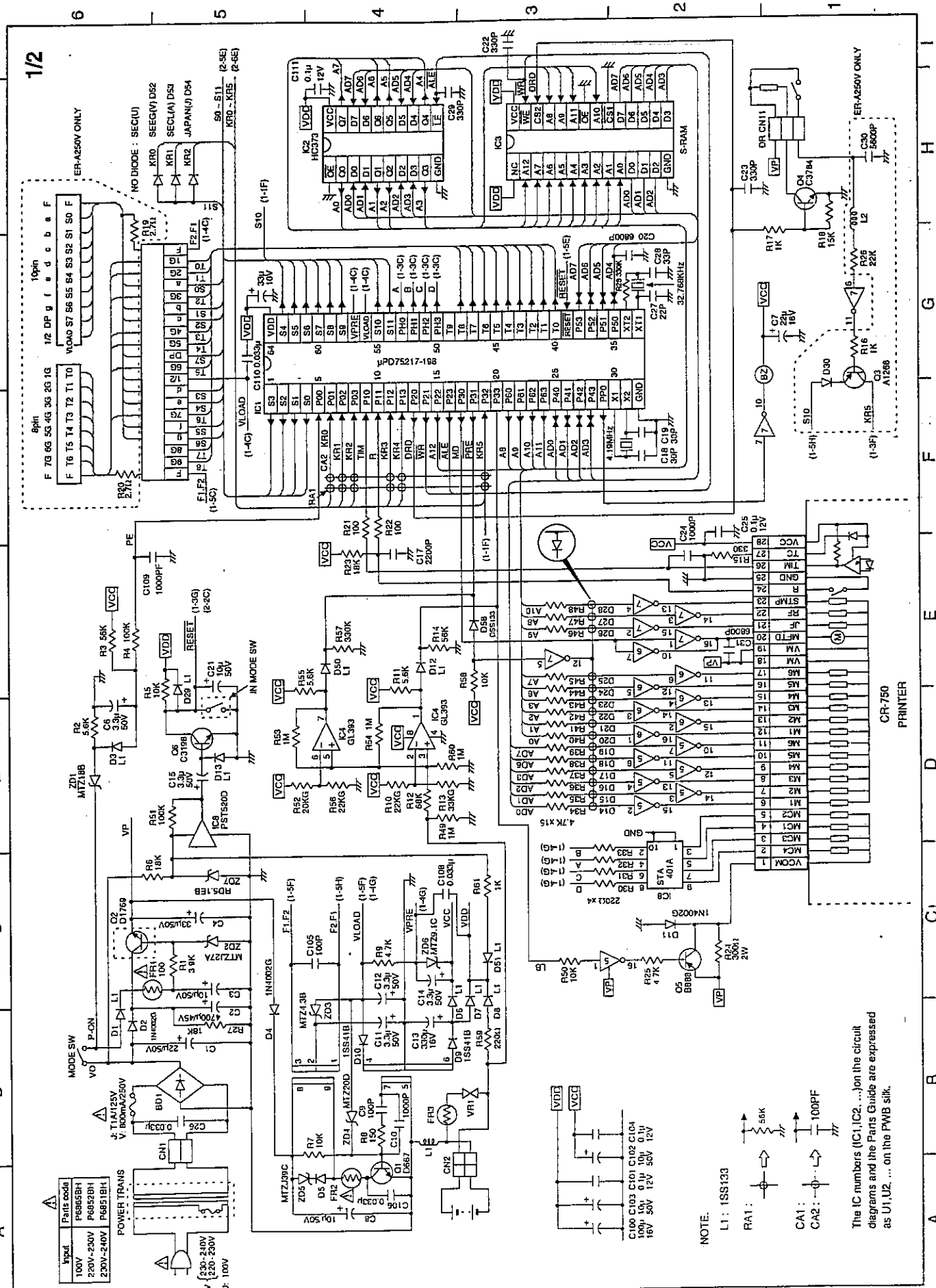
The bias is added to the base of Q1 when the power switch is turned on, so that Q1 starts self-oscillation. VLOAD from the secondary side is feed back through the zener diode ZD4 to suppress voltage fluctuation on the secondary side.

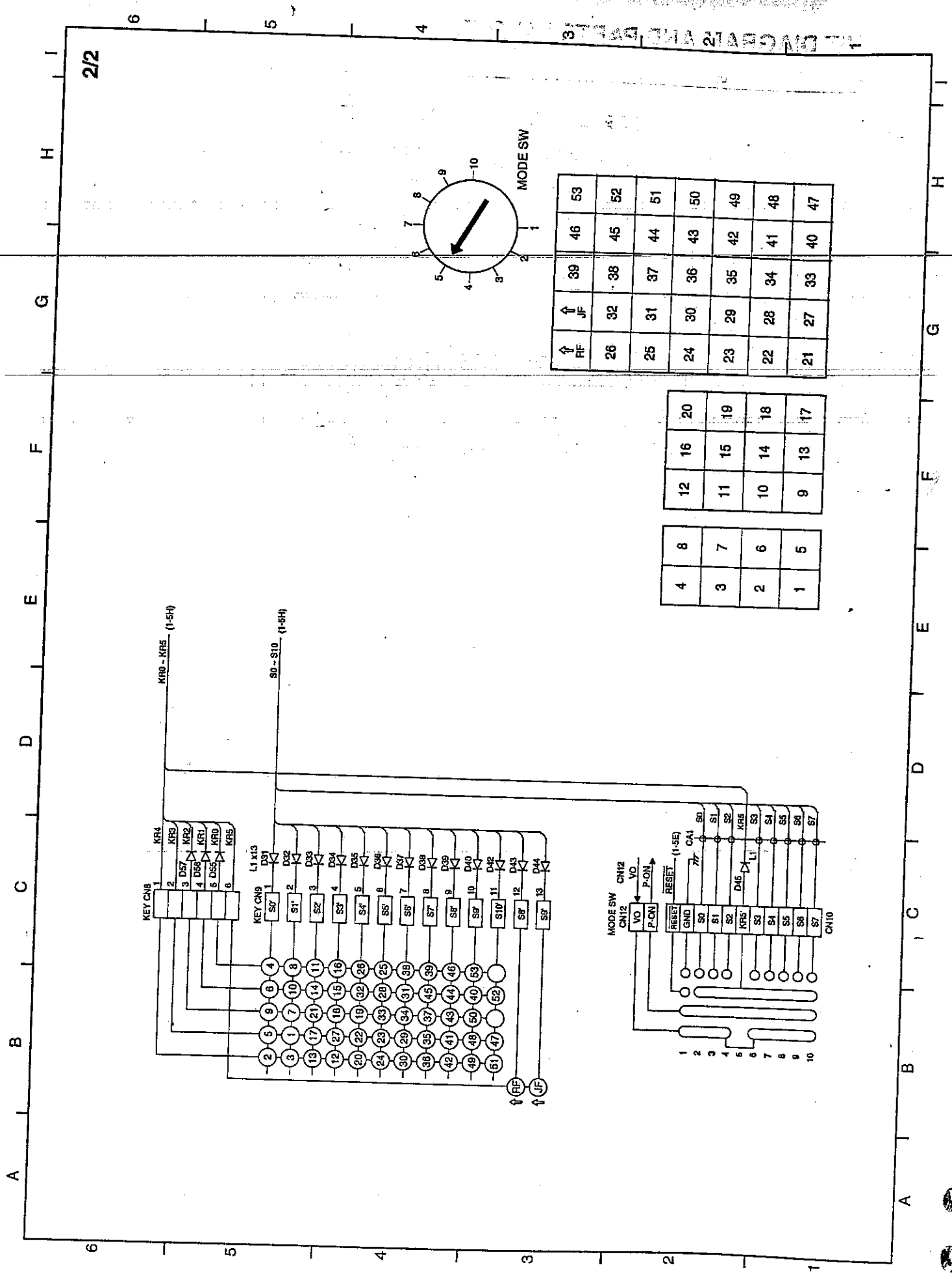
(9) Battery voltage monitoring circuit

The battery voltage level is monitored by the comparator IC (GL393). The following signals are provided depending on the state of battery voltage VB.

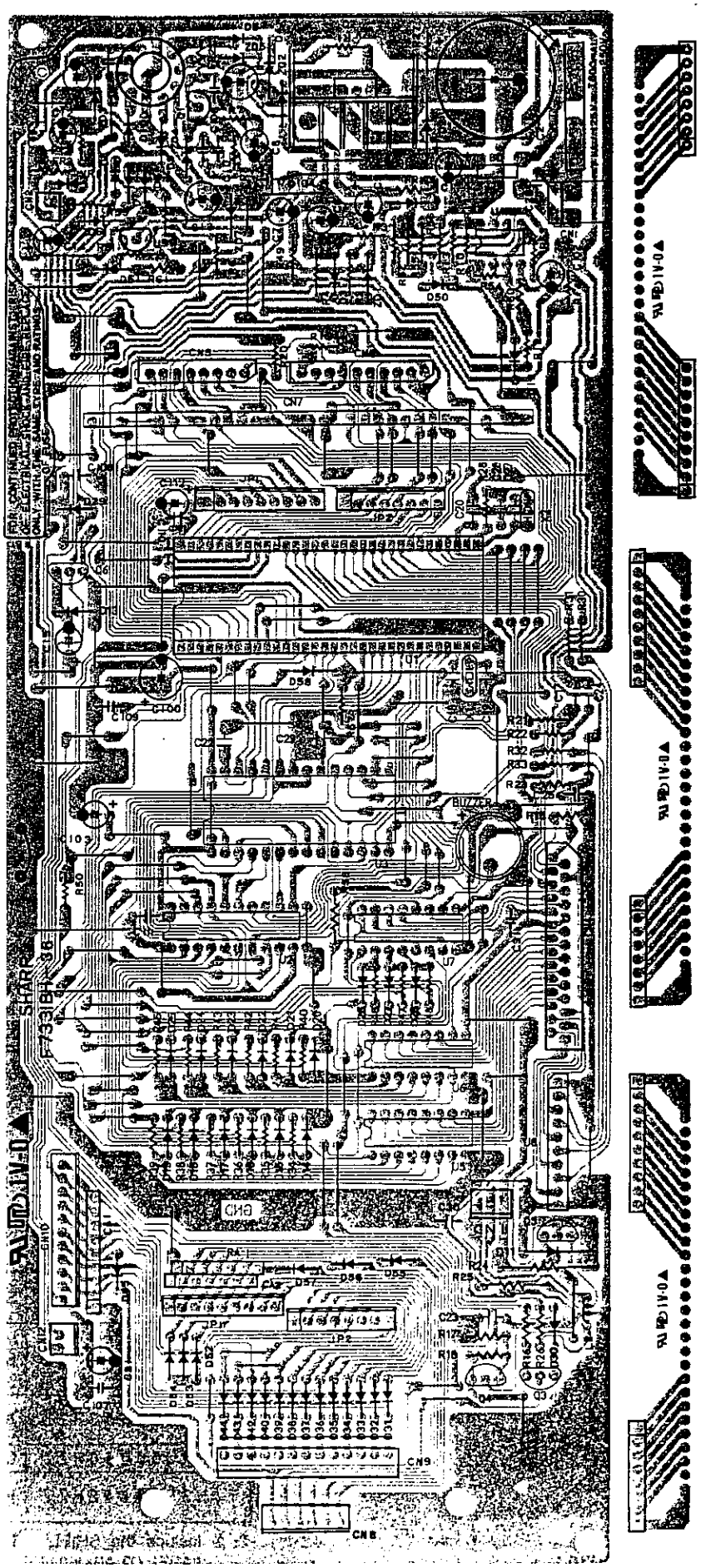
VB	→ 2.5	↔ 3.1	←
VB Battey LB (P33)	L	L	H
VB Battey NB (P31)	L	H	H

9. CIRCUIT DIAGRAM AND PARTS LAYOUT




2/2
MODE SW
KR0 ~ KR5 (1-5H)
S0 ~ S10 (1-5H)
KEY CN8
KEY CN9
L1 x13
MODE SW CN12
VO
P-ON
RESET
(1-5E)
CN10
RF
JF

Parts Layout



10. INSTALLATION OF OPTIONS

10-1. Key top kit

1) List of key top kit

No.	Name	Description
1	ER-11KT6	1 x 1 key top
2	ER-12KT6	1 x 2 key top
3	ER-22KT6	2 x 2 key top
4	ER-11DK6	1 x 1 Dummy key
5	ER-51DK6	1 x 5 Dummy key

2) Installation procedure

① ER-11KT6

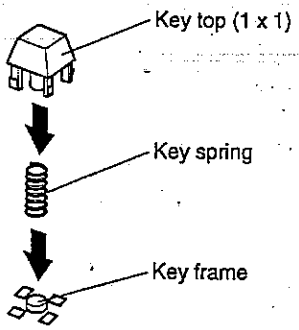


Fig. 10-1

② ER-12KT6

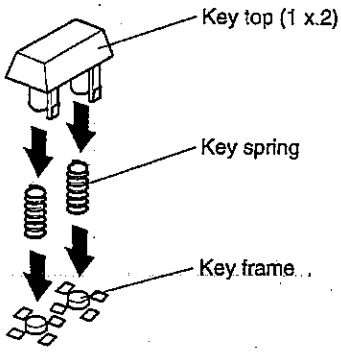


Fig. 10-2

③ ER-22KT6

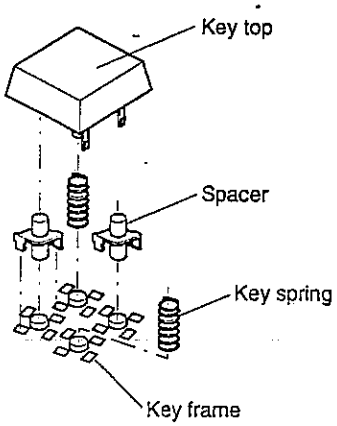


Fig. 10-3

④ Dummy key:

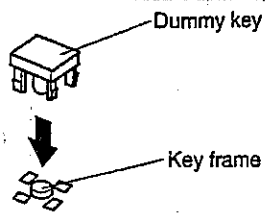


Fig. 10-4

3) Removing key top

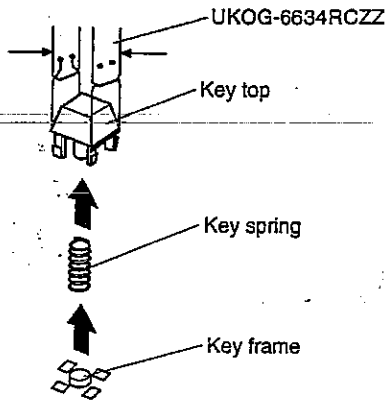


Fig. 10-5

10-2. DRAWER SEPARATION KIT

CAUTION:

The drawer unit should be securely fitted to the supporting platform to avoid instability with the drawer open.
Conversion of this unit should be done by qualified service person.
To prevent electrical shock, disconnect supply cord before servicing.

DRAWER REMOVAL PROCEDURE

1. Item required by model and destination

Model name	Item required	Destination
ER-A250	Shield Plate Kit (DKIT-8652BHZZ)	Europe, UK, Aus.

2. Parts list

Shield plate kit (DKIT-8652BHZZ)

Parts code	Description	Q'ty	Remark
DUNTM1910BHZZ	Shield plate unit	1	※1
PGUMM6697BHZZ	Rubber foot	3	
XHBSD30P12000	Screw	3	For rubber foot
XHBSD30P08000	Screw	1	For transformer cover
LX-HZ0056BHZZ	Screw	1	For top cabinet
LBSHC0004BHZZ	Clamp	1	
TINSE7284BHZZ	Inst manual	1	This removal precedure

※ 1 Include the SHIELD PLATE (GITAU6754BHZZ) with NAME LABEL (TLABM6944BHZZ).

3. Procedure

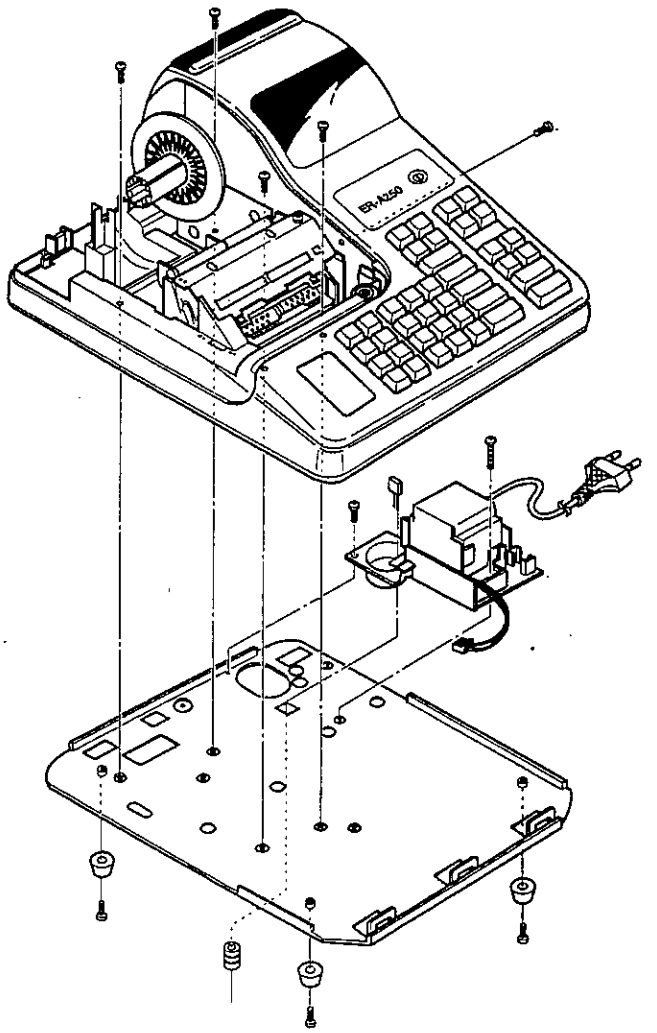
No.	Description	Parts name	Parts code
1	Remove four top cabinet holding screws.		
2	Remove the top cabinet from the drawer. Unfasten the transformer and drawer connectors.		
3	Remove the transformer cover holding screw.		
4	Remove the transformer cover from the drawer.		
5	Get the shield plate unit ready.	Shield plate unit	DUNTM1910BHZZ
6	Fasten the rubber foots with screws at three locations.	Rubber foot Screw	PGUMM6697BHZZ XHBSD30P12000
7	Insert the wire of the drawer solenoid microswitch in the clamp and install the clamp to the shield plate.	Clamp	LBSHC0004BHZZ
8	Install the transformer cover to the rear right of the shield plate and fasten the transformer cover with screws.	Screw	XHBSD30P08000
9	Replace the top cabinet to the shield plate. Fasten the transformer and drawer connectors as this point.		
10	Fasten the top cabinet with five screws.	Screw	LX-HZ0056BHZZ

Tailor the drawer solenoid microswitch wire to the size the user wants. Use the AWG22 wire for this.

4. Setting

Master reset
While pressing the Journal feed and 8 key, rotate the MODE switch from SRV2 to SRV1 position.

ER-A250 assembly procedure



SHARP PARTS GUIDE

MODEL ER-A250

PRINTER: CR-750
(for KA, KB, TQ, TS)

CONTENTS

The IC numbers (IC1, IC2,·····) on the circuit diagrams and the Parts Guide are expressed as U1, U2,·····on the PWB silk.

Because parts marked with "⚠" is indispensable for the machine safety maintenance and operation, it must be replaced with the parts specific to the product specification.

Table of destinations

SELECTION CODE	COUNTRIES
U	U. S. A., Guam
A	Canada
TS	Germany
TQ	SEEG territory other than Germany (Stamp : English)
TR	SEEG territory other than Germany (Stamp : Spanish)
KB	U. Kingdom
KA	Australia

SELECTION CODE	COUNTRIES
SB	Saudi Arabia (127V area)
SBA	Saudi Arabia (220V area)
SC	Taiwan
SD	Venezuela
SE	Hong Kong
SG	Lebanon, Syria, Greece, Pakistan, Iran, Egypt, Thailand, Iraq, Mauritius, Seychelles, Tahiti, Jordan, Sudan, Turkey
SH	South Africa (U. S. A. version)
SHE	South Africa (Europe version)
SJ	Philippines (Europe version)
SJ2	Philippines (U. S. A. version)
SM	Kuwait, Qatar, Oman, UAE, Malta, Bahrain
SMT	Nigeria, Yemen, Kenya

SELECTION CODE	COUNTRIES
K	Korea

SELECTION CODE	COUNTRIES
RA1	Morocco, Algeria, Tunisia, West Africa
RA2	Chile, Uruguay, Peru, Argentina, Paraguay
RA5	Sri Lanka

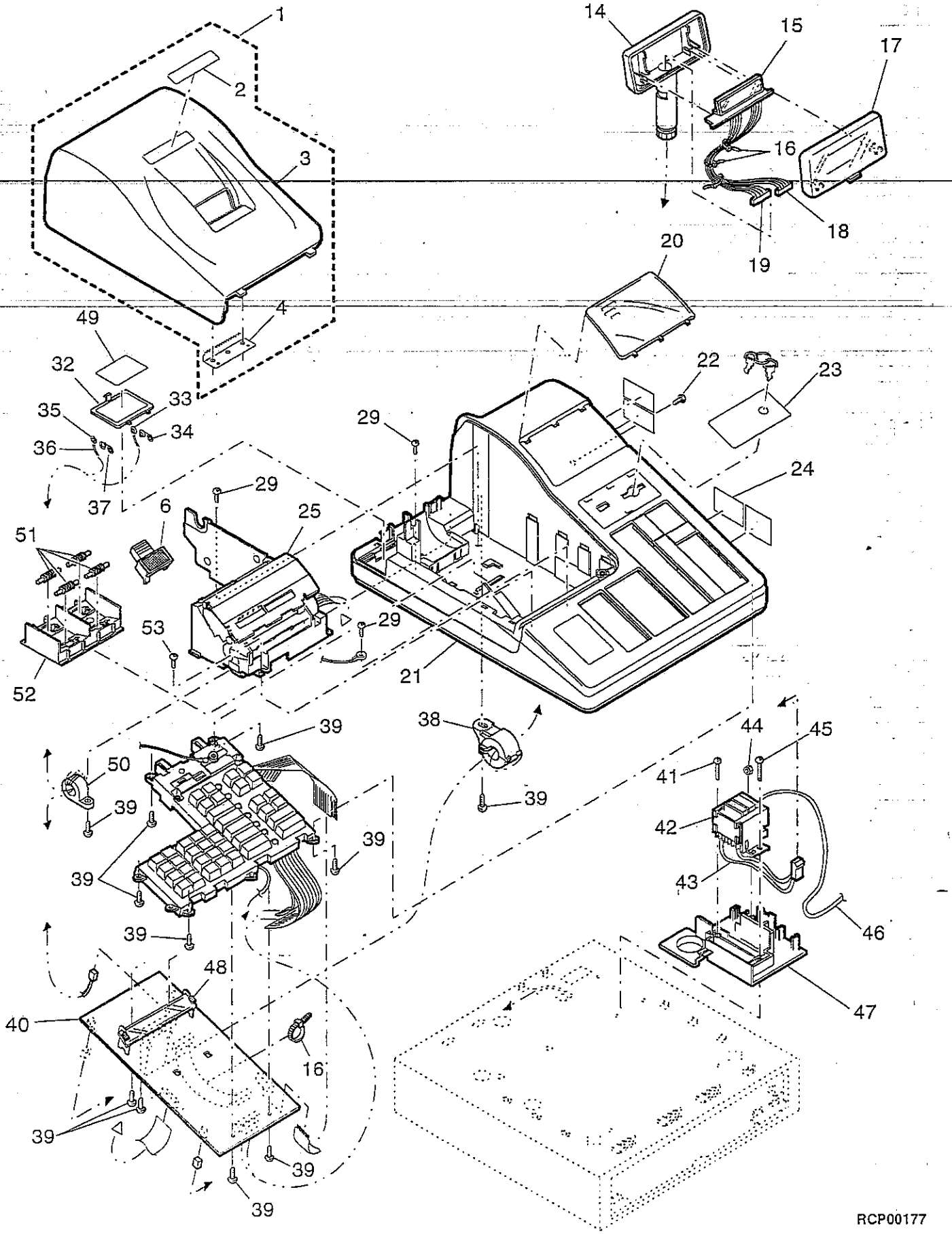
SELECTION CODE	COUNTRIES
RB3	Indonesia
RB4	
RB5	Cyprus
RB6	Panama
RB7	Barbados
RB8	Malaysia (U. S. A. version)

SELECTION CODE	COUNTRIES
RC1	Malaysia (Europe version)
RC2	Singapore
RC5	Dominican Republic, Ecuador

1 Exteriors

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	CCŌVB7067BH01	AW	N	D	Printer cover unit	
2	HBDGD6890BHSA	AG		D	Badge	
3	GCŌVB7067BHZZ	AU	N	D	Printer cover	
4	PCUT−6642BHZZ	AF		C	Paper cutter	
6	PSTM−6690RCZZ	AP		C	Stamp(YOUR RECEIPT THANK YOU)	[KA,KB,TQ]
	PSTM−6695RCZZ	AP		C	Stamp(VIELEN DARK)	[TS]
14	GCABB7167BHSA	AM		D	Pop up cabinet	
15	CPWBF7329BH01	BF		E	Pop up display PWB unit	
16	LBNDJ2003SCZZ	AA		C	Nylon band	
17	PFiLW6931BHZZ	AL		D	Pop up filter	
18	QCNCW7083BH08	AM		C	Connector (8P)	
19	QCNCW7083BH10	AP		C	Connector (10P)	
20	PFiLW6932BHZZ	AN		D	Display filter	
21	GCABB7166BHZA	BC	N	D	Top cabinet	
22	XBBSC30P08000	AA		C	Screw (3×8)	
23	HDECP6829BHSD	AM	N	D	Deco panel	
24	TCAUS6677BHZZ	AD		D	Caution label	
25	Ki−ŌB6766RCZZ	BY	N	E	Printer unit (CR−750)	
29	LX−HZ0056BHZZ	AA	N	C	Screw	
32	GFTAB6775BHSA	AF		D	Battery cover	
33	QTANZ6642BHZZ	AC		C	Battery terminal ⊖	
34	QTANZ1362CCZZ	AA		B	Battery terminal (⌿)A	
35	QTANZ6641BHZZ	AC		C	Battery terminal ⊕	
37	QTANZ1363CCZZ	AA		B	Battery terminal (⌿)B	
38	LHLDW6812BHZZ	AC		C	Cable holder	
39	XUBSD30P08000	AA		C	Screw (3×8)	
40	CPWBF7331BH01	BW	N	E	Main PWB unit	
41	XCPSD30P16X00	AA		C	Screw (3×16X)	
⚠ 42	RTRNP6852BHZZ	BC		B	Power transformer (220V)	[TQ,TS]
⚠ 42	RTRNP6851BHZZ	BE		B	Power transformer (240V)	[KA,KB]
43	QCNW−7451BHZZ	AG		C	Trans cable (2pin)	
44	XNESD30−24000	AA		C	Nut (3NS)	
45	LX−BZ6755RCZZ	AA		C	Screw	
⚠ 46	QACCL1018CCN1	AV		B	AC cord	[KA]
⚠ 46	QCNW−1035CCZZ	AL		B	AC cord	[KB]
⚠ 46	QPLGA0006QCZZ	AQ		C	Plug (3A 250V)	[KB]
⚠ 46	QACCE3120QCN5	AL		B	AC cord (250V 2.5A)	[TQ,TS]
47	GCŌVH7065BHSA	AH		D	Trans cover	
48	LHLDW6818BHZZ	AD		C	Display holder	
49	TCAUZ6681BHZZ	AD		D	Battery caution label	
50	RCŌRF6683RCZZ	AM		C	Core	
51	NRŌLP6651BHZZ	AD	N	C	Paper plate roller	
52	LPLTP6685BHZZ	AH	N	C	Paper plate	
53	LX−BZ6769RCZZ	AB		C	Screw	

I Exteriors


1
2
3
4
14
15
16
17
18
19
20
21
22
23
24
25
29
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
RCP00177

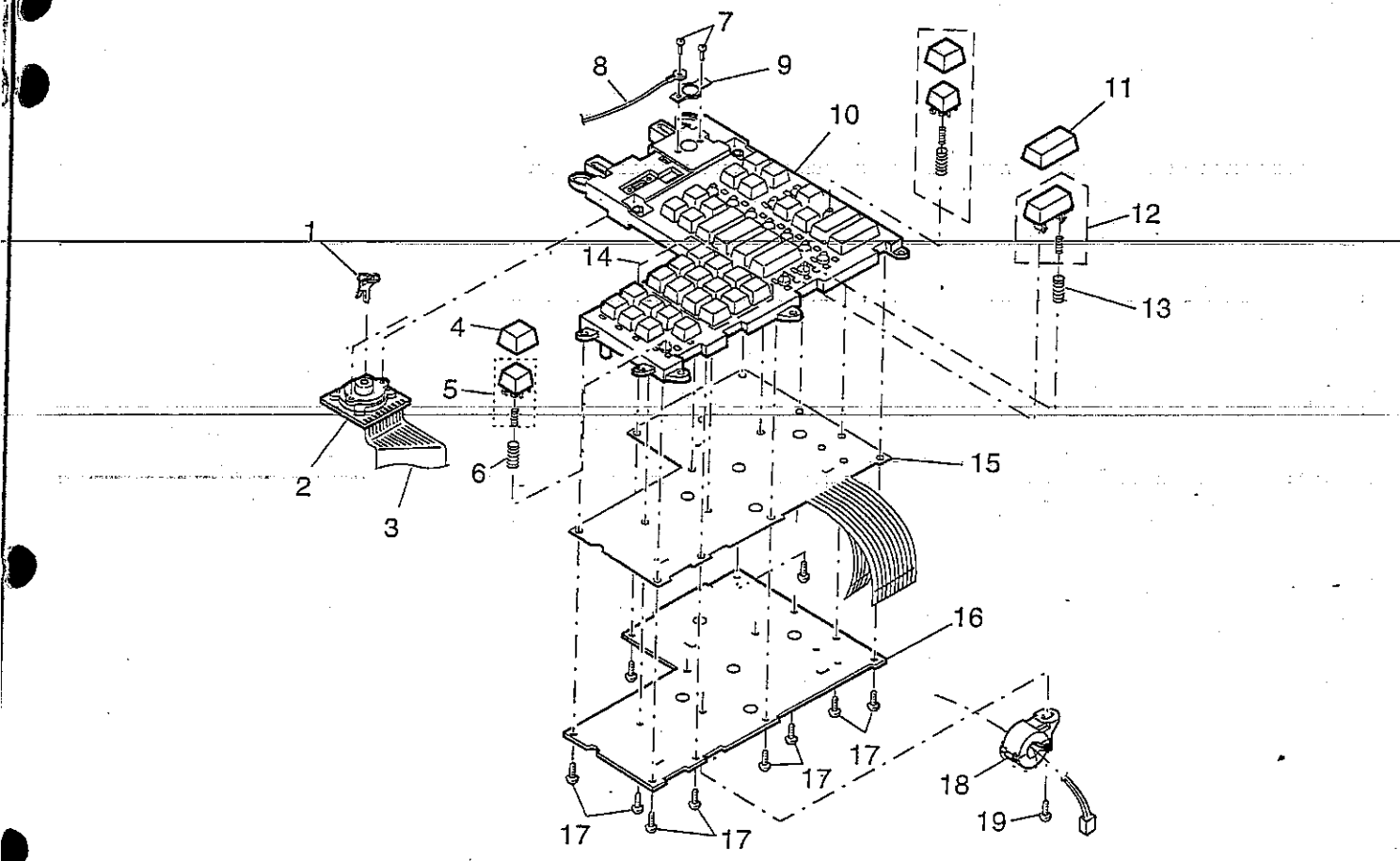
2 Keyboard unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	LKGiM7110RCZZ	AG		B	Master key (MA)
	LKGiM7111RCZZ	AG		B	Operator key (OP)
2	0DUBÖDY000002	AP		B	Mode key(body)
3	QCNW-7626BHZZ	AH		C	Mode switch cable
4	0EMKT80020001	AC		C	Key cap(1×1) (TKT8002-00-002)
5	0EMWK46466510	AC		C	Key top (1×1) (TWK4646-65-010)
6	0EMWK45531120	AC		C	Spring(1×1) (TWK4553-11-020)
7	XJSSN30P08000	AA		C	Screw (3×8)
9	LPLTM6683BHZA	AC	N	C	Earth plate
10	LFRM-6687BHZZ	AX		C	Key frame
11	0EMKT80220001	AE		C	Key cap(1×2) (TKT8022-00-002)
12	0EMWK46466610	AE		C	Key top (1×2) (TWK4646-66-010)
13	0EMWK45531210	AC		C	Spring (1×2) (TWK4553-12-010)
14	CKNBZ6872BH01	AV	N	C	Key top unit
15	CSHEP6800BH02	AZ	N	C	Key sheet unit
16	LPLTM6689BHZZ	AS		C	Fixing plate
17	XUPSD30P06000	AA		C	Screw (3×6)
18	RCÖRF6683RCZZ	AM		C	Core (TECK-251512)
19	XUBSD30P08000	AA		C	Screw (3×8)
101	TLABH6940BHZD	AN	N	D	Key label
501	DUNTK1864BHZZ	BN	N	E	Keyboard unit (Include No.4~6,11~13)

3 Packing material & Accessories

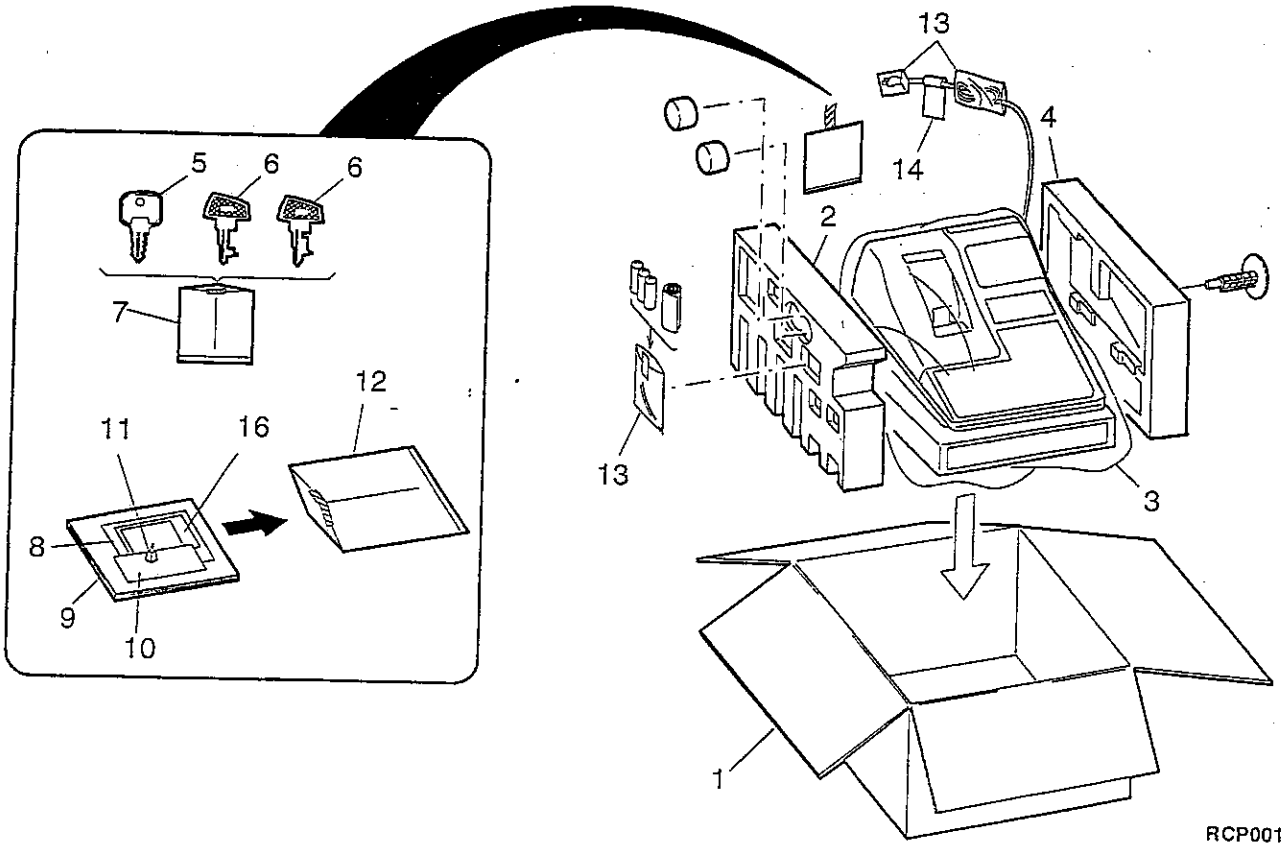
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	SPAKC8228BHZZ	AY	N	D	Packing case
2	SPAKA7837BHZZ	AX		D	Packing add(L)
3	PSHEP6681BHZZ	AF		D	Packing sheet
4	SPAKA7836BHZZ	AX		D	Packing add(R)
5	LKGiM7331BHZZ	AE		B	Lock key (1pc)
6	LKGiM7110RCZZ	AG		B	Master key (MA)
	LKGiM7111RCZZ	AG		B	Operator key (OP)
7	SSAKH3012CCZZ	AA		D	Vinyl bag (80×120mm)
8	TiNSN7240BHZZ	AF		D	Instruction book(Battery adjust) [TQ]
9	TiNSM7274BHZZ	AZ	N	D	Instruction book
10	TGANE1001BHZA	AF		D	Guaranty [KA]
11	UiNK-1001CCZZ	AK		S	Ink (5cc)
12	SSAKH3015CCZZ	AA		D	Vinyl bag (260×360mm)
13	SSAKA5004CCZZ	AA		D	Vinyl bag (100×300mm)
14	TCAUS0002AHZZ	AD		D	Important label [KB]
16	TCADZ2001BHZA	AM		D	Card [KA]

2 Keyboard unit



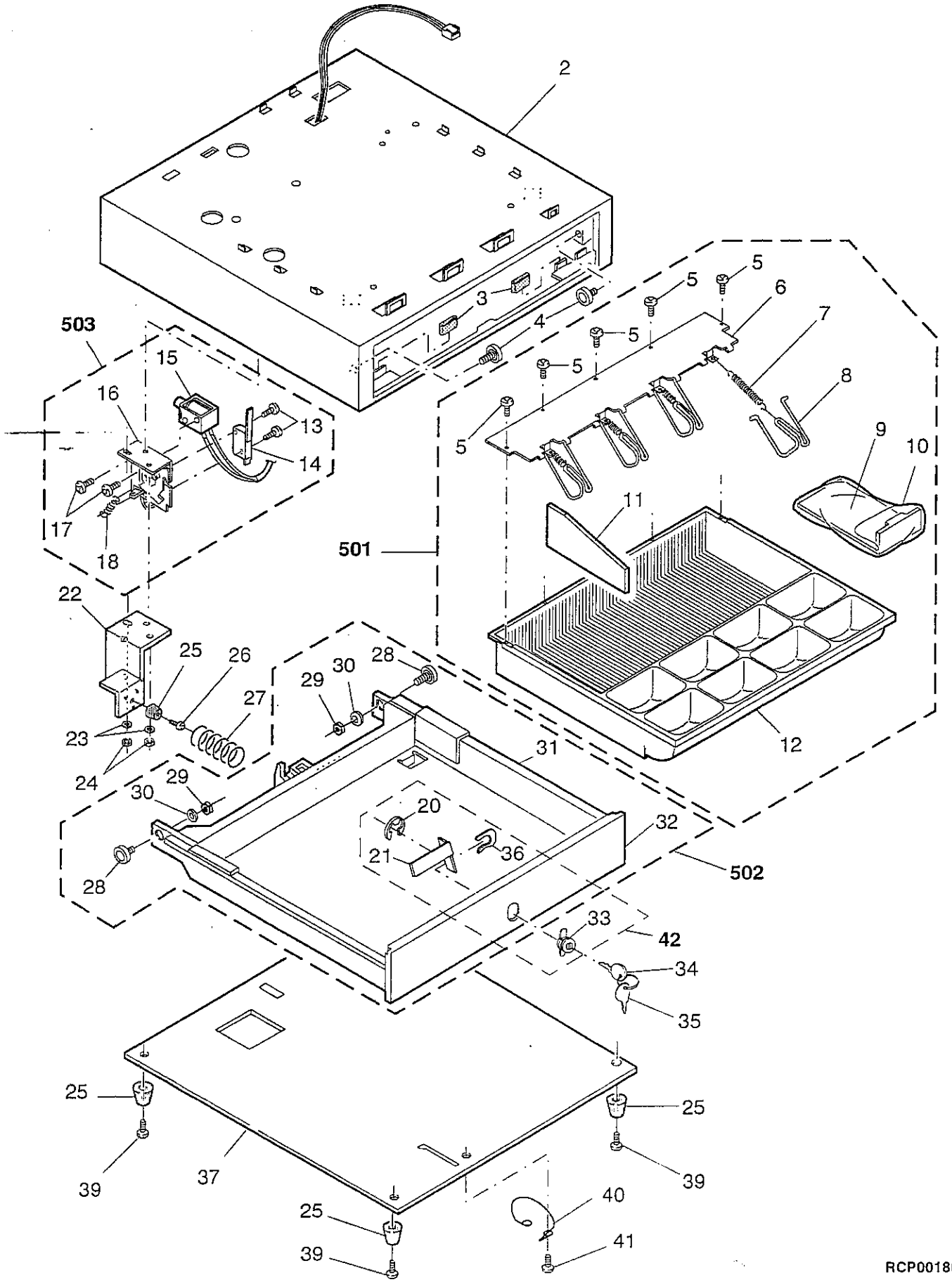
RCP00178

3 Packing material & Accessories



RCP00179

4 Drawer box unit(SK423 type)



4 Drawer box unit(SK423 type)

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
2	CCABM7169BH01	BL		D	Cabinet frame unit
3	PGUMM6695BHZZ	AE		D	Stopper gum
4	NROLP6650BHZZ	AP		C	Roller
5	XUBSD30P08000	AA		C	Screw (3×8)
6	LBRC-6663BHZZ	AQ		C	Bracket
7	MSPRT6714BHZZ	AE		C	Bill spring
8	MLEVF6695BHZZ	AK		C	Bill lever
9	PSKR-6629BHZZ	AL		C	Bill separator
10	SSAKA5004CCZZ	AA		D	Vinyl bag (100×300mm)
11	PSKR-6628BHZZ	AG		C	Separator
12	GCAS-6678BHZZ	BC		D	Money case (4B/8C)
13	LX-BZ6776BHZZ	AA		C	Screw
14	QSW-M6872BHZZ	AR		B	Microswitch
15	RPLU-6639BHZZ	AZ		B	Solenoid
16	CFRM-6683BH01	AW		D	Lock frame unit
17	LX-BZ6775BHZZ	AA		C	Screw
18	MSPRT6713BHZZ	AD		C	Open lever spring
20	XRESJ50-0600-0	AA		C	E-type ring (5mm)
21	MCAMM6633BHZZ	AG		C	Lock cam
22	LFRM-6682BHZZ	AN		D	Bell frame
23	XWSSD40-10000	AA		C	Washer (4mm)
24	XNESD40-32000	AA		C	Nut (M4)
25	PGUMM6696BHZZ	AE		D	Gum leg
26	XHBSD30P12000	AA		C	Screw (3×12)
27	MSPRC6712BHZZ	AF		C	Push out spring
28	NROLP6650BHZZ	AP		C	Roller
29	XNESD60-50000	AA		C	Nut (M6)
30	XWSSD60-15000	AA		C	Washer (6mm)
31	GDRW-6678BHZZ	BF		C	Drawer case frame unit
32	GCOVA7036BHZZ	AS		D	Front cover
33	LKGiW7330BHZZ	AY		B	Lock key(body)
34	PRNGT6637BHZZ	AA		C	Key ring
35	LKGiM7331BHZZ	AE		B	Lock key (1pc)
36	MSPRK6718BHZZ	AF		C	Lock key spring
37	LPLTM6674BHZC	AY		D	Bottom plate
39	XHBSD40P15000	AA		C	Screw (4×15)
40	MSPRB6711BHZZ	AD		C	Earth spring
41	XHPSC30P08000	AA		C	Screw (3×8)
42	DUNT-1306BHZZ	AX		E	Lock key unit (Include №20,21,33,34,36)
501	CCAS-6678BH01	BK		E	Money case unit (4B/8C)
502	GDRW-6678BHZA	BG		E	Drawer case unit
503	CLOK-6683BHZB	BK		C	Lock unit (Include №28~32)
504	CFRM-6682BH02	AQ		E	Bell frame unit
	(Unit)				(Include №22,25~27)
901	GBOXD7116BHZZ	BX		E	Drawer box unit

5 Main PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	VHDDSS133HV-1	AA		B	Diode (DSS133HV) [D50,51,58,52]
	VHDDSS133HV-1	AA		B	Diode (DSS133HV) [D1,3,5,6,7,8,12,13,29,30,31,32,33,34,35,36,37]
	VHDDSS133HV-1	AA		B	Diode (DSS133HV) [D38,39,40,42,43,44,45]
2	VHD1N4002G//-1	AA		B	Diode (1N4002G) [D2,4,11]
3	VHD1SS41B//-1	AB		B	Diode (1SS41B) [D9,10]
4	VHDRB721Q//-1	AE		B	Diode (RB721Q) [D14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,55]
	VHDRB721Q//-1	AE		B	Diode (RB721Q) [D56,57]
5	VHEMTZJ27A//-1	AB		B	Zener diode (MTZJ27A) [ZD2]
6	VHEMTZJ39C//-1	AB		B	Zener diode (MTZJ39C) [ZD5]
7	VHEHZ18-1//-1	AB		B	Zener diode (HZ18) [ZD1]
8	VHEMTZ20D//-1	AA		B	Zener diode (MTZ20D) [ZD4]
9	VHEMTZ4.3B//-1	AA		B	Zener diode (MTZ4.3B) [ZD3]
10	VHEMTZ9.1C//-1	AA		B	Zener diode (MTZ9.1C) [ZD6]
11	VRD-RC2EY101J	AA		C	Resistor (1/4W 100Ω ±5%) [R21,22]
12	VRD-RC2EY102J	AA		C	Resistor (1/4W 1.0KΩ ±5%) [R5,16,17,61]
13	VRD-RC2EY103J	AA		C	Resistor (1/4W 10KΩ ±5%) [R7,50,58]
14	VRD-RC2EY104J	AA		C	Resistor (1/4W 100KΩ ±5%) [R4,51]
15	VRD-RC2EY105J	AA		C	Resistor (1/4W 1.0MΩ ±5%) [R49,53,54,60]
16	VRD-RC2EY151J	AA		C	Resistor (1/4W 150Ω ±5%) [R8]
17	VRD-RC2EY153J	AA		C	Resistor (1/4W 15KΩ ±5%) [R18]
18	VRD-RC2EY183J	AA		C	Resistor (1/4W 18KΩ ±5%) [R6,23,27]
19	VRD-RC2EY2R7J	AA		C	Resistor (1/4W 2.7Ω ±5%) [R19,20]
20	VRD-RC2EY203G	AA		C	Resistor (1/4W 20KΩ ±2%) [R52]
21	VRD-RC2EY221J	AA		C	Resistor (1/4W 220Ω ±5%) [R30,31,32,33,59]
22	VRD-RC2EY223G	AA		C	Resistor (1/4W 22KΩ ±2%) [R10,56]
23	VRD-RC2EY223J	AA		C	Resistor (1/4W 22KΩ ±5%) [R26]
24	VRD-RC2EY331J	AA		C	Resistor (1/4W 330Ω ±5%) [R15]

5 Main PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
25	VRD-RC2EY333G	AA		C	Resistor (1/4W 33KΩ ±2%)	[R13]
26	VRD-RC2EY334J	AA		C	Resistor (1/4W 330KΩ ±5%)	[R28,57]
27	VRD-RC2EY392J	AA		C	Resistor (1/4W 3.9KΩ ±5%)	[R1]
28	VRD-RC2EY472J	AA		C	Resistor (1/4W 4.7KΩ ±5%)	[R9,25,34,35,36,37,38,39,40,41,42,43,44,45]
	VRD-RC2EY472J	AA		C	Resistor (1/4W 4.7KΩ ±5%)	[R46,47,48]
29	VRD-RC2EY562J	AA		C	Resistor (1/4W 5.6KΩ ±5%)	[R2,11,55]
30	VRD-RC2EY563J	AA		C	Resistor (1/4W 56KΩ ±5%)	[R3,14]
31	VRD-RC2EY683J	AA		C	Resistor (1/4W 68KΩ ±5%)	[R12]
32	QFSHD2109AFZZ	AC	N	C	Fuse holder	[F1]
33	RC-Z1N104RCZZ	AA		C	Capacitor (12WV 0.10μF)	[C25,101,104,111]
34	RCORF6675BHZZ	AC		C	Core (BFS3550R2F)	[L1]
35	RCORF6691BHZZ	AD		C	Core (BFD3580R2F)	[L2]
36	VCCCPU1HH220J	AA		C	Capacitor (50WV 22PF)	[C27]
37	VCCCPU1HH300J	AA		C	Capacitor (50WV 30PF)	[C18,19]
38	VCCCPU1HH330J	AB		C	Capacitor (50WV 33pF)	[C28]
39	VCEAGA1CW107M	AC		C	Capacitor (16WV 100μF)	[C100]
40	VCEAGA1CW226M	AB		C	Capacitor (16WV 22μF)	[C7]
41	VCEAGA1CW337M	AB		C	Capacitor (16WV 330μF)	[C13]
42	VCEAGA1HW106M	AA		C	Capacitor (50WV 10μF)	[C3,8,21,102,103]
43	VCEAGA1HW226M	AB		C	Capacitor (50WV 22μF)	[C1]
44	VCEAGA1HW335M	AB		C	Capacitor (50WV 3.3μF)	[C6,11,12,14,15]
45	VCEAGA1HW336M	AB	N	C	Capacitor (50WV 33μF)	[C4]
46	VCKYPU1HB101K	AA		C	Capacitor (50WV 100pF)	[C9,106,107]
47	VCKYPU1HB102K	AA		C	Capacitor (50WV 0.001μF)	[C10,24,109]
48	VCKYPU1HB222K	AA		C	Capacitor (50WV 2200PF)	[C17]
49	VCKYPU1HB331K	AA		C	Capacitor (50WV 330pF)	[C22,23,29]
50	VCKYPU1HB562K	AA		C	Capacitor (50WV 5600PF)	[C30]
51	VCKYPU1HB682K	AA		C	Capacitor (50WV 6800pF)	[C20,31]
52	VCQYNA1HM333K	AA		C	Capacitor (50WV 0.033μF)	[C26,105,108,110]
53	VHVTN07G180-1	AF		B	Varistor (ERZ-TC4BB180)	[VR1]
54	VSDSA001-//-1	AA		B	Transistor (2SA1266)	[Q3]
55	VSDSC001-//-1	AA		B	Transistor (2SC945)	[Q6]
56	PRDAF6658BHZZ	AK	N	C	Heat sink	[Q2]
57	QCNCM1101CCZZ	AB		C	Connector (2pin)	[CN1]
58	QCNCM6865RC0H	AC		C	Connector (8pin)	[CN5]
59	QCNCM6865RC1J	AC		C	Connector (10pin)	[CN6]
60	QCNCM7057RCZZ	AB	N	C	Connector (3P)	[CN11]
61	QCNCW5111BC2H	AF		C	Connector (28pin)	[CN4]
62	QCNCW6882RC0B	AB		C	Connector (42pin)	[CN12]
63	QCNCW6882RC1A	AD		C	Connector (11pin)	[CN10]
64	QCNCW7076RC0F	AC		C	Connector (6pin)	[CN8]
65	QCNCW7076RC1C	AD		C	Connector (13pin)	[CN9]
66	QCNCW7081RCZZ	AB		C	Connector (2P)	[CN2]
67	QCNW-7649BHZZ	AM	N	C	Main cable (8pin)	[JP2]
68	QCNW-7650BHZZ	AN	N	C	Main cable (9pin)	[JP3]
⚠ 69	QFS-C4301CCZZ	AE		A	Fuse (0.8A/250V)	[F1]
70	RALMB6646BHZZ	AQ		B	Buzzer	[Buzzer]
71	RC-EZ336ARC1A	AB		C	Capacitor (10WV 33μF)	[C112]
72	RC-EZB478RC1W	AK		C	Capacitor (45WV 4700μF)	[C2]
73	RCRM-1011CCZZ	AD		B	Oscillator (4.19MHz)	[X1]
74	RCRSP1003CCZZ	AT		B	Crystal (32KHz)	[X2]
75	RMPTC6563QCJB	AB		B	Block resistor (56KΩ×6 1/8W ±5%)	[RA1]
⚠ 76	RR-XZ6645RCZL	AB		B	Fuse resistor (1/4W 1Ω)	[FR2,3]
77	RR-XZ6647RCZL	AA		B	Fuse resistor (1/4W 100Ω ±5%)	[FR1]
78	RTRNH6813RCZZ	AF		B	Converter transformer	[T1]
79	VHD1D4B42//-1	AD		B	Diode (1D4B42)	[BD]
80	VHERD5.1EL1-1	AB		B	Zener diode (RD5.1EL1)	[ZD7]
81	VHiD75217-198	AY	N	B	IC (D75217-198)	[U1]
82	VHiUPC393C/-1	AF		B	IC (μPC393C)	[U4]
83	VHiMC74HC373N	AK		B	IC (MC74HC373N)	[U2]
84	VHiLC3664NL12	AT		B	IC (LC3664NL12)	[U3]
85	VHiKiD65003AP	AE		B	IC (KD65003AP)	[U5,6,7]
86	VHiPST520D/-1	AG		B	IC (PST520D)	[U9]
87	VHiSTA401A/-1	AP		B	IC (STA401A)	[U8]
88	VRS-RE3DA301J	AB		C	Resistor (2W 300Ω ±5%)	[R24]
89	VS2SB888-//-1	AD		B	Transistor (2SB888)	[Q5]
90	VS2SC3784-/-1	AD		B	Transistor (2SC3784)	[Q4]
91	VS2SD1769-/-1	AE		B	Transistor (2SD1769)	[Q2]
92	VS2SD667-//-1	AD		B	Transistor (2SD667)	[Q1]
93	XUPSD30P08000	AA		C	Screw (3×8)	
94	RMPTE8101BHZZ	AG		B	Capacitor array (100pF×8)	[CA1]
95	RMPTE6101BHZZ	AF		B	Capacitor array (100pF×6)	[CA2]
96	LBNDJ2003SCZZ	AA		C	Cable band	
97	VVDH9BT28G/-1	AU		B	Display tube	
98	PHOG-1060CCZZ	AA		C	Display cushion	
99	LHLDW6818BHZZ	AD		C	Display angle	
	(Unit)					
901	CPWBF7331BH01	BW	N	E	Main PWB unit	

6 Pop−up display PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	QCNCW7083BH08	AM		C	Connector (8P)
2	QCNCW7083BH10	AP		C	Connector (10P)
3	LBNDJ2003SCZZ	AA		C	Nylon band
4	VVK7MT143G/−1	AX		B	Display tube
	(Unit)				
901	CPWBF7329BH01	BF		E	Pop up display PWB unit

7 Articles for consumption

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	UiNK−1001CCZZ	AK		S	Ink (5cc)
2	DPAPR1006CSZZ	AR		S	Roll paper (5roll/pack)
3	NROLR6652RCZZ		N	S	Inked roller (Blister pack)
4	NROLR6652RC05		N	S	Inked roller (5−stage blister pack)
5	TPAPR0001RCZZ	AF		S	Roll paper (1PC)

8 Service route options

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	GCOVH7063BHZZ	BE		S	Drip proof key cover
2	LKGiM7113RCZZ	AK		B	SRV key
3	DKiT−8652BHZZ		N	S	Drawer separation kit
11	DUNTM1910BHZZ	BT	N	S	Shield plate unit (Include №11~17)
12	TiNSE7284BHZZ	AG	N	D	Instruction book
13	PGUMM6697BHZZ	AE		C	Gum leg (H=17mm)
14	XHBSD30P12000	AA		C	Screw (3×12)
15	LBSHC0004BHZZ	AC	N	C	Clamp
16	XHBSD30P08000	AA		C	Screw (3×8)
17	LX−HZ0056BHZZ	AA	N	C	Screw

9 AC CORD

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
⚠ 1	QACCJ1413QCZZ	AG		B	AC cord Japan, RB6, RB7, RC5, SC, SD
⚠	QACCA3441QCZZ	AL		B	AC cord SB
⚠ 2	QACCD8411QCZZ	AN		B	AC cord U. S. A, Canada, Japan (Okinawa), Guam
	QTANP0004HCZZ	AB		B	Lug terminal U. S. A, Canada
⚠ 3	QACCE3120QCN5	AP		B	AC cord RA1, RA2, RB3, RB5, SG, TQ, TR, TS, K AC cord Yugoslavia
⚠	QPLGA4501CCZZ	AK		B	Plug SE
⚠ 4	QCNW-6629RCZZ	AN		B	AC cord SE
⚠	QPLGA0018WRE0	AN		B	Plug SH, RA5
⚠ 5	QCNW-6629RCZZ	AN		B	AC cord SH, RA5, SHE
⚠	PHOG-1023CCZZ	AB		B	Bushing for AC cord SH, RA5, SHE
⚠ 6	QACCL1018CCZZ	AS		B	AC cord KA, SL
	QTANP0004HCZZ	AB		B	Lug terminal RC2, SM, SMT, RC1, SBA, RB8
	QPLGA0006QCZZ	AN		B	Plug KB, SM, SMT, RC1, SBA, RB8, RC2
7	QCNW-1035CCZZ	AH		B	AC cord KB, RC1, RC2, SM, SMT, SBA
⚠	QCNW-6629RCZZ	AN		B	AC cord RB8
⚠ 8	QCNW-6629RCZZ	AN		B	AC cord RB4 (AC cord only. The plug is not included.)
⚠ 9	QACCZ3423QCZZ	AH		B	AC cord SJ, SJ2

Note : Instead of AC cords QACCZ3421QCZZ/QACCK1008CCZZ, the AC cord QACCE1422QCZZ(No.3) is supllied as service spare part.

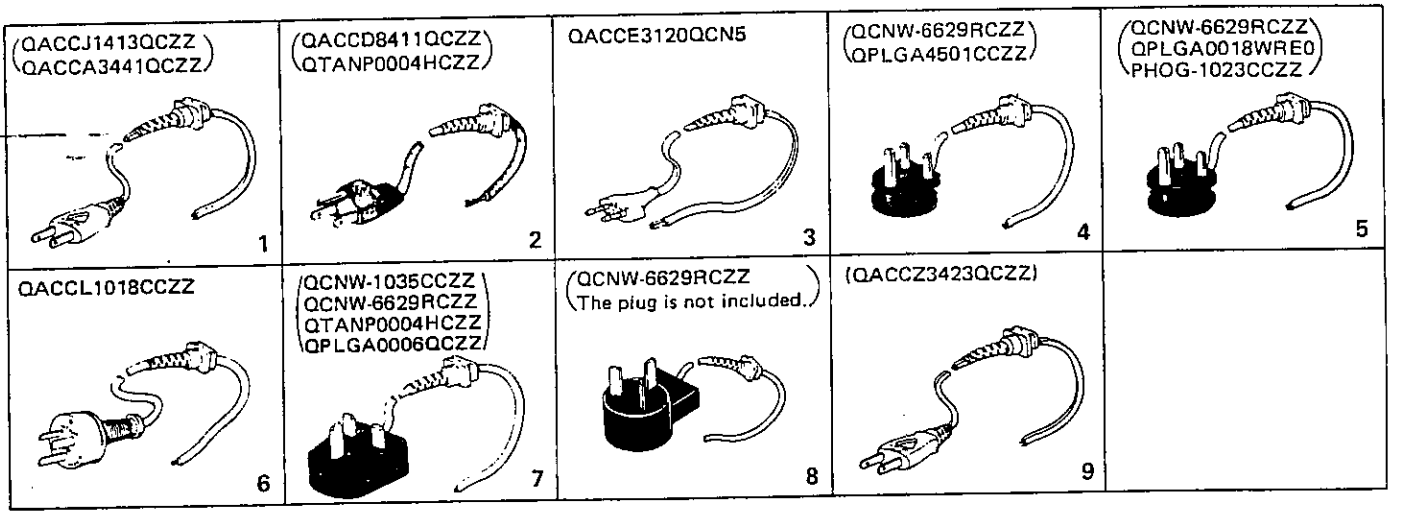


Table of destinations

SELECTION CODE	COUNTRIES
U	U. S. A., Guam
A	Canada
TS	Germany
TQ	SEEG territory other than Germany (Stamp : English)
TR	SEEG territory other than Germany (Stamp : Spanish)
KB	U. Kingdom
KA	Australia

SELECTION CODE	COUNTRIES
K	Korea

SELECTION CODE	COUNTRIES
RA1	Morocco, Algeria, Tunisia, West Africa
RA2	Chile, Uruguay, Peru, Argentina, Paraguay
RA5	Sri Lanka

SELECTION CODE	COUNTRIES
RB3	Indonesia
RB4	
RB5	Cyprus
RB6	Panama
RB7	Barbados
RB8	Malaysia (U. S. A. version)

SELECTION CODE	COUNTRIES
SB	Saudi Arabia (127V area)
SBA	Saudi Arabia (220V area)
SC	Taiwan
SD	Venezuela
SE	Hong Kong
SG	Lebanon, Syria, Greece, Pakistan, Iran, Egypt, Thailand, Iraq, Mauritius, Seychelles, Tahiti, Jordan, Sudan, Turkey
SH	South Africa (U. S. A. version)
SHE	South Africa (Europe version)
SJ	Philippines (Europe version)
SJ2	Philippines (U. S. A. version)
SM	Kuwait, Qatar, Oman, UAE, Malta, Bahrain
SMT	Nigeria, Yemen, Kenya

SELECTION CODE	COUNTRIES
RC1	Malaysia (Europe version)
RC2	Singapore
RC5	Dominican Republic, Ecuador

■ Index

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
[C]				
CCABM7169BH01	4- 2	BL		D
CCAS-6678BH01	4- 501	BK		E
CCOVB7067BH01	1- 1	AW	N	D
CFRM-6682BH02	4- 504	AQ		E
CFRM-6683BH01	4- 16	AW		D
CKNBZ6872BH01	2- 14	AV	N	C
CLOK-6683BHZB	4- 503	BK		C
CPWBF7329BH01	1- 15	BF		E
//	6- 901	BF		E
CPWBF7331BH01	1- 40	BW	N	E
//	5- 901	BW	N	E
CSHEP6800BH02	2- 15	AZ	N	C
[D]				
DKiT-8652BHZZ	8- 3		N	S
DPAPR1006CSZZ	7- 2	AR		S
DUNT-1306BHZZ	4- 42	AX		E
DUNTK1864BHZZ	2- 501	BN	N	E
DUNTM1910BHZZ	8- 11	BT	N	S
[G]				
GBOXD7116BHZZ	4- 901	BX		E
GCABB7166BHZA	1- 21	BC	N	D
GCABB7167BHSA	1- 14	AM		D
GCAS-6678BHZZ	4- 12	BC		D
GCOVA7036BHZZ	4- 32	AS		D
GCOVB7067BHZZ	1- 3	AU	N	D
GCOVH7063BHZZ	8- 1	BE		S
GCOVH7065BHSA	1- 47	AH		D
GDRW-6678BHZA	4- 502	BG		E
GDRW-6678BHZZ	4- 31	BF		C
GFTAB6775BHSA	1- 32	AF		D
[H]				
HBDGD6890BHSA	1- 2	AG		D
HDECP6829BHSD	1- 23	AM	N	D
[K]				
KI-OB6766RCZZ	1- 25	BY	N	E
[L]				
LBNDJ2003SCZZ	1- 16	AA		C
//	5- 96	AA		C
//	6- 3	AA		C
LBRC-6663BHZZ	4- 6	AQ		C
LBSHC0004BHZZ	8- 15	AC	N	C
LFRM-6682BHZZ	4- 22	AN		D
LFRM-6687BHZZ	2- 10	AX		C
LHLDW6812BHZZ	1- 38	AC		C
LHLDW6818BHZZ	1- 48	AD		C
//	5- 99	AD		C
LKGiM7110RCZZ	2- 1	AG		B
//	3- 6	AG		B
LKGiM7111RCZZ	2- 1	AG		B
//	3- 6	AG		B
LKGiM7113RCZZ	8- 2	AK		B
LKGiM7331BHZZ	3- 5	AE		B
//	4- 35	AE		B
LKGiW7330BHZZ	4- 33	AY		B
LPLTM6674BHZC	4- 37	AY		D
LPLTM6683BHZA	2- 9	AC	N	C
LPLTM6689BHZZ	2- 16	AS		C
LPLTP6685BHZZ	1- 52	AH	N	C
LX-BZ6755RCZZ	1- 45	AA		C
LX-BZ6769RCZZ	1- 53	AB		C
LX-BZ6775BHZZ	4- 17	AA		C
LX-BZ6776BHZZ	4- 13	AA		C
LX-HZ0056BHZZ	1- 29	AA	N	C
//	8- 17	AA	N	C
[M]				
MCAMM6633BHZZ	4- 21	AG		C
MLEVF6695BHZZ	4- 8	AK		C
MSPRB6711BHZZ	4- 40	AD		C
MSPRC6712BHZZ	4- 27	AF		C
MSPRK6718BHZZ	4- 36	AF		C
MSPRT6713BHZZ	4- 18	AD		C
MSPRT6714BHZZ	4- 7	AE		C
[N]				
NROLP6650BHZZ	4- 4	AP		C
//	4- 28	AP		C
NROLP6651BHZZ	1- 51	AD	N	C
NROLR6652RCZZ	7- 3		N	S
NROLR6652RC05	7- 4		N	S
[P]				

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
PCUT-6642BHZZ	1- 4	AF		C
PFiLW6931BHZZ	1- 17	AL		D
PFiLW6932BHZZ	1- 20	AN		D
PGUMM6695BHZZ	4- 3	AE		D
PGUMM6696BHZZ	4- 25	AE		D
PGUMM6697BHZZ	8- 13	AE		C
PHOG-1060CCZZ	5- 98	AA		C
PRDAF6658BHZZ	5- 56	AK	N	C
PRNGT6637BHZZ	4- 34	AA		C
PSHEP6681BHZZ	3- 3	AF		D
PSKR-6628BHZZ	4- 11	AG		C
PSKR-6629BHZZ	4- 9	AL		C
PSTM-6690RCZZ	1- 6	AP		C
PSTM-6695RCZZ	1- 6	AP		C
[Q]				
QACCE3120QCN5	1- 46	AL		B
QACCL1018CCN1	1- 46	AV		B
QCNCM110ICCZZ	5- 57	AB		C
QCNCM6865RC0H	5- 58	AC		C
QCNCM6865RC1J	5- 59	AC		C
QCNCM7057RCZZ	5- 60	AB	N	C
QCNCW5111BC2H	5- 61	AF		C
QCNCW6882RC0B	5- 62	AB		C
QCNCW6882RC1A	5- 63	AD		C
QCNCW7076RC0F	5- 64	AC		C
QCNCW7076RC1C	5- 65	AD		C
QCNCW7081RCZZ	5- 66	AB		C
QCNCW7083BH08	1- 18	AM		C
//	6- 1	AM		C
QCNCW7083BH10	1- 19	AP		C
//	6- 2	AP		C
QCNW-1035CCZZ	1- 46	AL		B
QCNW-7451BHZZ	1- 43	AG		C
QCNW-7626BHZZ	2- 3	AH		C
QCNW-7649BHZZ	5- 67	AM	N	C
QCNW-7650BHZZ	5- 68	AN	N	C
QFS-C4301CCZZ	5- 69	AE		A
QFSHD2109AFZZ	5- 32	AC	N	C
QPLGA0006QCZZ	1- 46	AQ		C
QSW-M6872BHZZ	4- 14	AR		B
QTANZ1362CCZZ	1- 34	AA		B
QTANZ1363CCZZ	1- 37	AA		B
QTANZ6641BHZZ	1- 35	AC		C
QTANZ6642BHZZ	1- 33	AC		C
[R]				
RALMB6646BHZZ	5- 70	AQ		B
RC-EZB478RC1W	5- 72	AK		C
RC-EZ336ARC1A	5- 71	AB		C
RC-Z1N104RCZZ	5- 33	AA		C
RCORF6675BHZZ	5- 34	AC		C
RCORF6683RCZZ	1- 50	AM		C
//	2- 18	AM		C
RCORF6691BHZZ	5- 35	AD		C
RCRM-1011CCZZ	5- 73	AD		B
RCRSP1003CCZZ	5- 74	AT		B
RMPTC6563QCJB	5- 75	AB		B
RMPTE6101BHZZ	5- 95	AF		B
RMPTE8101BHZZ	5- 94	AG		B
RPLU-6639BHZZ	4- 15	AZ		B
RR-XZ6645RCZL	5- 76	AB		B
RR-XZ6647RCZL	5- 77	AA		B
RTRNH6813RCZZ	5- 78	AF		B
RTRNP6851BHZZ	1- 42	BE		B
RTRNP6852BHZZ	1- 42	BC		B
[S]				
SPAKA7836BHZZ	3- 4	AX		D
SPAKA7837BHZZ	3- 2	AX		D
SPAKC8228BHZZ	3- 1	AY	N	D
SSAKA5004CCZZ	3- 13	AA		D
//	4- 10	AA		D
SSAKH3012CCZZ	3- 7	AA		D
SSAKH3015CCZZ	3- 12	AA		D
[T]				
TCADZ2001BHZA	3- 16	AM		D
TCAUS0002AHZZ	3- 14	AD		D
TCAUS6677BHZZ	1- 24	AD		D
TCAUZ6681BHZZ	1- 49	AD		D
TGANE1001BHZA	3- 10	AF		D
TiNSE7284BHZZ	8- 12	AG	N	D
TiNSM7274BHZZ	3- 9	AZ	N	D

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
TiNSN7240BHZZ	3- 8	AF		D	
TLABH6940BHZD	2-101	AN	N	D	
TPAPR0001RCZZ	7- 5	AF		S	
[U]					
UiNK-1001CCZZ	3- 11	AK		S	
//	7- 1	AK		S	
[V]					
VCCCPU1HH220J	5- 36	AA		C	
VCCCPU1HH300J	5- 37	AA		C	
VCCCPU1HH330J	5- 38	AB		C	
VCEAGA1CW107M	5- 39	AC		C	
VCEAGA1CW226M	5- 40	AB		C	
VCEAGA1CW337M	5- 41	AB		C	
VCEAGA1HW106M	5- 42	AA		C	
VCEAGA1HW226M	5- 43	AB		C	
VCEAGA1HW335M	5- 44	AB		C	
VCEAGA1HW336M	5- 45	AB	N	C	
VCKYPU1HB101K	5- 46	AA		C	
VCKYPU1HB102K	5- 47	AA		C	
VCKYPU1HB222K	5- 48	AA		C	
VCKYPU1HB331K	5- 49	AA		C	
VCKYPU1HB562K	5- 50	AA		C	
VCKYPU1HB682K	5- 51	AA		C	
VCQYNA1HM333K	5- 52	AA		C	
VHDDSS133HV-1	5- 1	AA		B	
//	5- 1	AA		B	
//	5- 1	AA		B	
VHDRB721Q//-1	5- 4	AE		B	
//	5- 4	AE		B	
VHD1D4B42//-1	5- 79	AD		B	
VHD1N4002G/-1	5- 2	AA		B	
VHD1SS41B//-1	5- 3	AB		B	
VHEHZ18-1//-1	5- 7	AB		B	
VHEMTZJ27A/-1	5- 5	AB		B	
VHEMTZJ39C/-1	5- 6	AB		B	
VHEMTZ20D//-1	5- 8	AA		B	
VHEMTZ4.3B/-1	5- 9	AA		B	
VHEMTZ9.1C/-1	5- 10	AA		B	
VHERD5.1EL1-1	5- 80	AB		B	
VHiD75217-198	5- 81	AY	N	B	
VHiKiD65003AP	5- 85	AE		B	
VHiLC3664NL12	5- 84	AT		B	
VHiMC74HC373N	5- 83	AK		B	
VHiPST520D/-1	5- 86	AG		B	
VHiSTA401A/-1	5- 87	AP		B	
VHiUPC393C/-1	5- 82	AF		B	
VHVTN07G180-1	5- 53	AF		B	
VRD-RC2EY101J	5- 11	AA		C	
VRD-RC2EY102J	5- 12	AA		C	
VRD-RC2EY103J	5- 13	AA		C	
VRD-RC2EY104J	5- 14	AA		C	
VRD-RC2EY105J	5- 15	AA		C	
VRD-RC2EY151J	5- 16	AA		C	
VRD-RC2EY153J	5- 17	AA		C	
VRD-RC2EY183J	5- 18	AA		C	
VRD-RC2EY2R7J	5- 19	AA		C	
VRD-RC2EY203G	5- 20	AA		C	
VRD-RC2EY221J	5- 21	AA		C	
VRD-RC2EY223G	5- 22	AA		C	
VRD-RC2EY223J	5- 23	AA		C	
VRD-RC2EY331J	5- 24	AA		C	
VRD-RC2EY333G	5- 25	AA		C	
VRD-RC2EY334J	5- 26	AA		C	
VRD-RC2EY392J	5- 27	AA		C	
VRD-RC2EY472J	5- 28	AA		C	
//	5- 28	AA		C	
VRD-RC2EY562J	5- 29	AA		C	
VRD-RC2EY563J	5- 30	AA		C	
VRD-RC2EY683J	5- 31	AA		C	
VRS-RE3DA301J	5- 88	AB		C	
VSDSA001-//-1	5- 54	AA		B	
VSDSC001-//-1	5- 55	AA		B	
VS2SB888-//-1	5- 89	AD		B	
VS2SC3784-/-1	5- 90	AD		B	
VS2SD1769-/-1	5- 91	AE		B	
VS2SD667-//-1	5- 92	AD		B	
VVDH9BT28G/-1	5- 97	AU		B	
VVK7MT143G/-1	6- 4	AX		B	
[X]					
XBBSC30P08000	1- 22	AA		C	

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
XCPSD30P16X00	1- 41	AA		C	
XHBSD30P08000	8- 16	AA		C	
XHBSD30P12000	4- 26	AA		C	
//	8- 14	AA		C	
XHBSD40P15000	4- 39	AA		C	
XHPSC30P08000	4- 41	AA		C	
XJSSN30P08000	2- 7	AA		C	
XNESD30-24000	1- 44	AA		C	
XNESD40-32000	4- 24	AA		C	
XNESD60-50000	4- 29	AA		C	
XRESJ50-06000	4- 20	AA		C	
XUBSD30P08000	1- 39	AA		C	
//	2- 19	AA		C	
//	4- 5	AA		C	
XUPSD30P06000	2- 17	AA		C	
XUPSD30P08000	5- 93	AA		C	
XWSSD40-10000	4- 23	AA		C	
XWSSD60-15000	4- 30	AA		C	
[0]					
0DUBODY000002	2- 2	AP		B	
0EMKT80020001	2- 4	AC		C	
0EMKT80220001	2- 11	AE		C	
0EMWK45531120	2- 6	AC		C	
0EMWK45531210	2- 13	AC		C	
0EMWK46466510	2- 5	AC		C	
0EMWK46466610	2- 12	AE		C	

SHARP

SHARP CORPORATION
Information Systems Group
Quality & Reliability Control Center
Yamatokoriyama, Nara 639-11, Japan
1993 July Printed in Japan Ⓢ